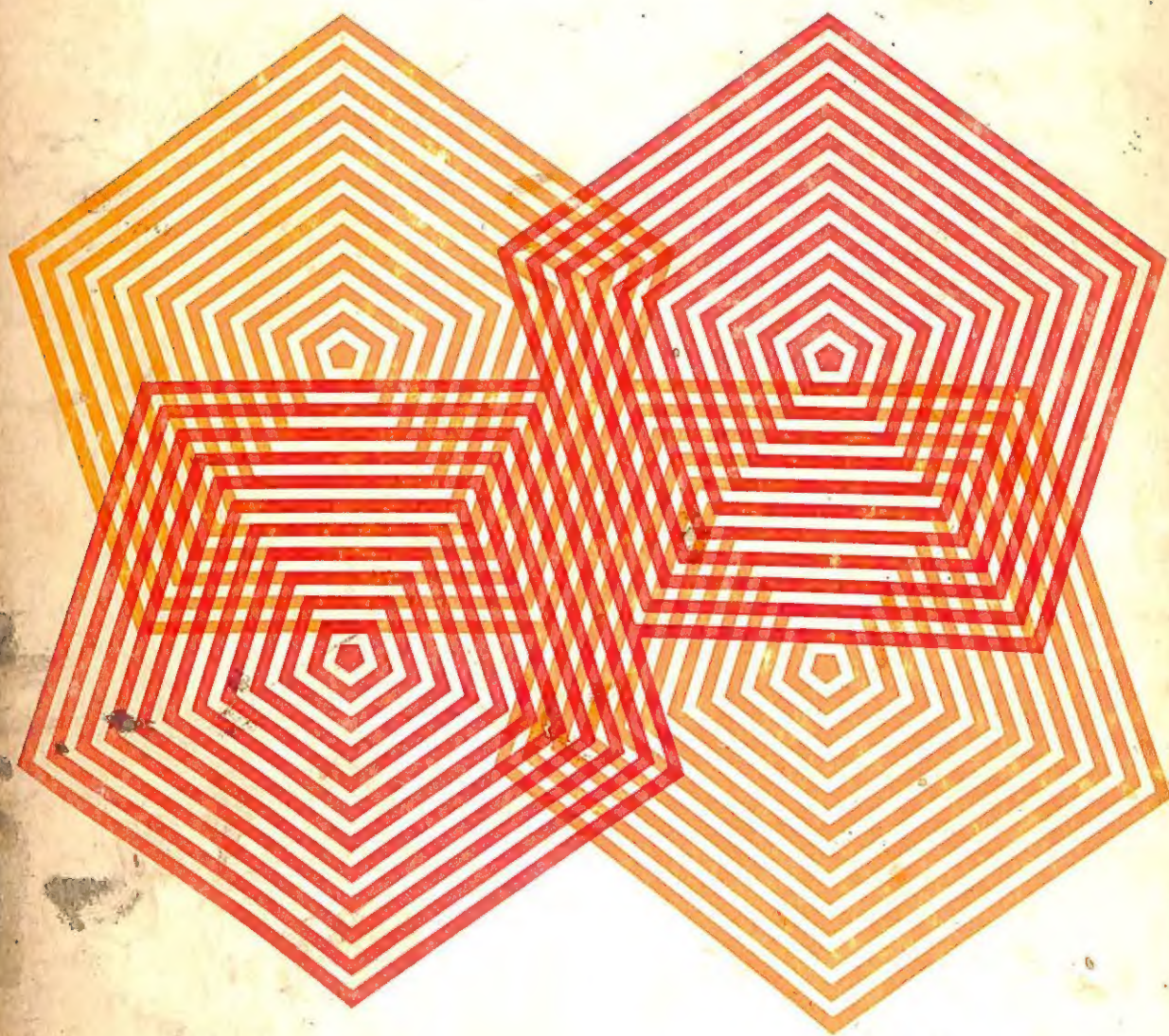


International Institute for Educational Planning

Planning the development of universities—III

Edited by Victor G. Onushkin



The Unesco Press

Planning the development of universities

A series of reports based on an IIEP research project

- Vol. I. IIEP seminar on planning the development of universities, Paris, 7-11 July 1969
(Basic discussion paper/ Summary report of the seminar/ Case study on Leningrad State University/ Case study on the University of Sussex)
- Vol. II. Analysis of the questionnaire of the project 'Planning the development of universities'
(Summary of the findings from the questionnaire/ Introduction and the structure of the sample/ The state of replies/ University growth/ University autonomy and the involvement of different bodies in the internal decision-making process/ Trends of change in university structure (1958-68)/ Structure of the student body/ Teaching staff/ Innovation in the teaching work/ Evaluation of teaching programmes/ Research in the universities/ Source of university finance/ Use of indices for university planning/ Past and future factors of change in the university/ University functions and their priorities/ The tables/ Appendix I. Method of analysis of the questionnaire/ Appendix II. The questionnaire/ Appendix III. Glossary of terms)
- Vol. III. Final report of the project / Summary report of the Seminar /
Summaries of case studies / Guidelines for the preparation of case studies
- Vol. IV. Case studies: Methodology of planning of the university system in the USSR/
Planning the teaching work at Humboldt University, Berlin,
German Democratic Republic/ State University of New York at Buffalo:
case study of teaching and research/ System of indicators and criteria
for planning and management at the Western Australian Institute of Technology/
A university information system: case study carried out at the Catholic University
of Louvain, Belgium

International Institute for Educational Planning

Planning the development of universities—III

e

Edited by Victor G. Onushkin



Paris 1974 The Unesco Press

The IIEP research project on 'Planning the development of universities' has been carried out with financial assistance from the Swedish International Development Authority (SIDA), the Canadian International Development Agency (CIDA) and the Ford Foundation.

S.C.E R T., West Bengal

Date...25.2.82..

Acc. No...2827.....

378
VNE V3

Books of Text & Psychological
(S.C.E R T.)

e

As 2827

Published in 1974 by the Unesco Press,
Place de Fontenoy, 75700 Paris
Printed by N.I.C.I., Ghent
ISBN 92-803-1065-8

© Unesco 1974
Printed in Belgium

Preface

This volume, the third in the series of publications of the project 'Planning the development of universities', is no doubt awaited with the greatest interest since it contains the bulk of the results of the project in the form of the final report, summaries of the case studies carried out in many different parts of the world, and a report of the discussions at the international seminar which marked the close of the project.

The final report will be found at the beginning of this volume, for it lists the most important conclusions drawn from the research, deals with the methodological problems of planning the development of universities and makes some theoretical and practical recommendations for the future. One of the conclusions (which has since been borne out by events in different countries, particularly in Europe) is that in the coming decade the qualitative aspects of university activities are likely to be the major concern of those responsible for higher education. Certainly quantitative growth will continue, but one can already see that the rate of growth in number of university students is slowing down in some countries and what is really needed is the organization of serious qualitative changes in the systems of higher education in order, firstly, to bring universities closer to meeting national social and economic needs; secondly, to diversify and at the same time integrate higher educational systems; and thirdly, to close the widening gap in university performance at present existing between developing and developed countries. If these vital tasks are to be fulfilled, some changes need to be made in university management and higher educational planning at both national and institutional levels. One of the fundamental prerequisites is the development of university information systems and mechanisms for better planning and management. It can be seen that the above and other broad conclusions listed in the final report were developed further in the seminar discussions, where not only the information given in the case-studies but also the experience of the participants was drawn upon.

The other important lessons which can be drawn from this study are that, despite the fact that the research was focused on the institutional level of university planning and management, planning at this level cannot be considered as a separate entity but as part of planning and management of the whole system of

higher education, because even in cases where universities enjoy almost complete autonomy, their policies are nevertheless affected by the system of higher education as a whole and are dependent on social, economic and political conditions prevailing in the country.

The case studies carried out for the project were organized in order to study the five most important areas of university activity:

- Planning access to the university and employment of graduates;
- Planning teaching staff formation;
- Planning of the teaching work;
- Planning of research work;
- Development of the university information system for planning and management.

The universities executing the case studies were chosen so as to illustrate the variety of social, economic and political situations in which higher educational institutions have to function and the type of conditions under which their planning and managerial mechanisms must work. Therefore the case studies in this volume represent more or less the whole range of planning situations, from the comprehensive planning in socialist countries to those with only some elements of planning at the institutional level or no planning at all. From this point of view the lessons to be drawn from the case studies are important since they analyse the experience of different universities working in different conditions, from which one may choose whatever is relevant to one's own situation. Even in cases where not a great deal can be learned as regards planning, we find, as an institute which is training educational planners, that they represent good examples of what still needs to be done.

In this connexion, one of the problems which attracted much attention in the process of carrying out the project and during the seminar was that of planning access to the university and employment of graduates. The methodological approach chosen for these case studies, i.e. linking access with future employment of graduates, was supported by many participants. However, in most universities, there is no such link and although it was felt that the right to higher education and the right to employment must be interdependent, some participants pointed out that in the situation where there is no manpower planning, it is difficult to achieve co-ordination in this sphere. Nevertheless, efforts undertaken by certain universities in exploring future possibilities for the employment of their graduates through professional societies, through the circulation of questionnaires, etc., must be considered as worthwhile efforts to close the existing gap between access to the university and employment of graduates in countries where there is no overall planning. It was clear that only long-term manpower planning provides valuable orientation for the development of higher educational systems.

During the seminar it was proposed that the Guidelines which were prepared by the Institute for use as a basis for case studies, should be published together with the case studies themselves, since, as has already occurred, they can be used as a methodological basis for developing university planning and the modernization of university management.

The work done during this research project has contributed to an awareness of the problems, and that awareness is the first important step towards solutions. The conclusions and recommendations set out here already show in what way certain solutions may be arrived at. We therefore have a firm basis for further research work in the field of higher educational planning and in this connexion I would like to draw attention to the list of problems—approved by the seminar—which are considered as being the most important areas for further research in higher educational planning in the future.

Finally, I would like to express my gratitude to all those who took part in the research project—those who completed questionnaires, those who wrote case studies and the participants in the seminar who gave such valuable advice and information. I must particularly mention the support we have received from the International Association of Universities and associations of universities in Latin America.

RAYMOND POIGNANT
Director, IIEP

Contents

<i>Final report of the project "Planning the development of universities"</i> by Victor G. Onushkin	11
<i>Summary report of the seminar</i>	53
I. Introduction	55
II. Discussion of the analysis of the questionnaire	56
III. Planning access to the university and employment of graduates	62
IV. Planning of teaching staff formation	73
V. Planning of the teaching work	78
VI. Planning of research work	86
VII. The university information system and indices for planning the development of universities	96
VIII. The creation of a favourable planning climate in the university and training of planning staff	103
IX. Conclusion	106
<i>List of participants and observers</i>	107
<i>Summaries of case studies</i>	
I. Methodology of comprehensive planning of the university system	109
— Methodology of planning of the university system in the USSR	111
II. Planning access to the university and employment of graduates	129
— Access to the university of Damascus and employment of graduates	131
— Access to the Federal University of Bahia, Brazil and employment of graduates	142
— Access to Chiangmai University, Thailand, and employment of grad- employment of graduates	159
— Access to the University of Malawi and employment of graduates	168
uates	181
— Access to the "Universidad Nacional Autonoma de Nicaragua" and — Access to the University of Malaya	190
III. Planning of teaching staff formation	201
— Formation of the teaching staff at the University of the South, Argentina	203
— Formation of the teaching staff at Cairo University	225
IV. Planning of the teaching work	241
— Planning of the teaching work at Humboldt University, Berlin, German Democratic Republic	243

— The teaching work at Kabul University, Afghanistan	252
— The teaching work at the National University of Cuyo, Argentina . . .	268
— Development of the teaching work in the Faculty of Arts, University of Barcelona, Spain	281
— Organisation of the teaching work at the University of Ife, Nigeria . . .	289
— The teaching process in the Faculty of Arts and Sciences of the American University of Beirut	307
— Teaching work and research at the State University of New York at Buffalo, USA	333
V. Planning of research work	351
— Organisation of the research work at the West Pakistan University of Engineering and Technology	353
— Research work at the University of Tokyo	363
VI. Development of the university information system for planning and manage- ment	385
— Evolving a university information system at the Catholic University of Louvain, Belgium	387
— System of indicators and criteria for planning and management at the Western Australian Institute of Technology	398
— Decision-making and information flow systems in the Middle East Tech- nical University, Ankara, Turkey	411
<i>Guidelines for the preparation of Case Studies</i>	<i>425</i>

Planning the development of universities

Final report of the project

by Victor G. Onushkin

I. Introduction

The research project 'Planning the development of universities' was begun in 1969 at the International Institute for Educational Planning. Its aims were defined as follows:

- (a) To analyze the most important and interesting tendencies in the development of universities (past, present and future); to identify the difficulties and shortcomings in this development and to generalize the most valuable experiences in university planning and management.
- (b) To work out a system of tools and methods for university planning and management, which might be used by the heads of universities to reveal hidden or under-utilized reserves, to make the most efficient allocation of existing limited resources, and generally to result in an improved decision-making process which will better adapt the university to the socio-economic needs of the country.
- (c) To formulate recommendations for the use of modern methods of university planning and management in different situations and circumstances which might be useful to heads of universities in their day-to-day activities.

The characteristic features of the project are:

- (a) It has as its basis the experience of a great number of universities in the large group of countries who are Member States of Unesco. The latter include both developing and developed countries with a wide variety of socio-economic structures, which has given us the opportunity to make broad comparisons and groupings—an important factor in research of this type.
- (b) It also makes possible the generalization and dissemination of information on some of the most interesting experiments in university planning and management which are going on today.
- (c) The project is oriented mainly towards the needs of the universities in developing countries to improve methods and mechanisms of planning and management, but it is equally true that many universities in developed countries need to improve on their methods of planning and management.
- (d) At the present stage, research is focused on the problems of planning and management at individual university level, although it is obvious that planning at the individual level can be successful only when a great many factors relating

to the whole system of higher education are taken into account; that is, where higher educational planning at the national level exists.

Work on the project was carried out in three major parts:

1. Collection of information on the basis of the questionnaire and analysis of the replies to it in order to obtain a diagnosis of the present situation of university planning and management in different parts of the world. This analysis was published in Volume II of the series 'Planning the Development of Universities'.
2. On the basis of the analysis of the questionnaire and other information, a number of universities were selected and case studies were carried out on different aspects of university planning and management which enabled us to examine more closely the methods used at individual universities. The following particular problems were chosen for investigation:
 - planning access to the university and employment of graduates;
 - planning of the teaching work;
 - planning of research work;
 - planning of teaching staff formation;
 - development of the university information system, including the system of indices and criteria for university planning and management.

For each of these areas of study, special guidelines were prepared which the universities were asked to follow in writing up their reports. From three to five universities were selected in different parts of the world to carry out studies on each of the above problems and although some of them were subsequently unable to do such work, twenty-one case studies were finally submitted to the Institute.

These case studies provided us with a great deal of information in order to:

- identify the major problems and difficulties which universities are facing in the process of their development;
- evaluate the present situation with regard to the efforts universities are making to solve these problems and their proposed possible solutions for the future.

This gives the basis for working out theoretical and practical recommendations for improving university planning and management.

3. Collection and careful study of existing literature on the problem, mainly in the English and Russian languages, throughout the period of work on the project.

Our information is therefore very heterogeneous and we faced many difficulties in summarizing and generalizing it, and in making reasonable and acceptable conclusions which would be applicable to the majority of universities. However, I would like to point out that the object was not to produce a recipe for solving all problems which can arise during the process of university development but to concentrate our attention on the methodology of university planning and management and the type of help it can offer.

By university *planning* we mean in this study the function of modern management which is aimed at guaranteeing a balanced development of the university by taking into consideration both internal and external forces and constraints in order to adapt the university to the progressive social and economic development and needs of the country.

In fact, in the process of this study we encountered different types of planning:

- (a) Comprehensive socio-economic planning, including higher educational planning, as carried out by the socialist countries;
- (b) Indicative or other forms of partial planning as practised by some of the capitalist or developing countries which exists either at central government level, but does not directly affect lower levels (including that of the individual university), or at the institutional level. Very often, it covers only some aspects of economic or educational development.

Many countries in the world do not have any kind of planning at all. During the last decade the word 'planning' became very popular but it was used for describing many different phenomena. One must bear in mind that the real nature and content of planning is determined by the whole socio-economic and political structure of the country where planning is exercised, and one should not be misled by the mere utilization of the word 'planning'.

By *development* we understand not just the simple quantitative growth of the university but growth which is linked with qualitative changes, both inside and outside the university, and aimed at meeting the above-mentioned national demands.

This report is based on an analysis of information received in the process of carrying out the research project as well as on an analysis of existing literature. The most important tendencies in the development of universities and of university planning and management have been noted and, on this basis, recommendations have been made concerning:

- methods and tools for university planning and management;
- indices and criteria to be used for planning purposes;
- university information systems for planning;
- university planning mechanisms.

As a rule in this report, the experience of different universities is referred to in generalized form, but some details of particular experiences are given in the case studies, summaries of which are included in part III of this volume.

II. Trends of expansion in higher education

Recent decades have seen marked socio-political changes in the world which have to a great extent influenced the development of entire higher educational systems, embracing not only individual universities but other types of higher educational institutions as well. One of the most important contemporary trends is the ever-increasing pace of the scientific and technological revolution which leaves its imprint on all aspects of social life. There exists a close interdependence and inter-relationship between scientific and technological progress, economic and social changes in society and the development of higher education. Demand for higher education has grown very rapidly and higher educational systems, as sub-systems of society, as well as individual universities, now find themselves surrounded by a much more complex socio-economic environment than previously. The scientific and technological revolution is characterized by the unity of the processes of differentiation and integration of different fields of knowledge and by their rapid rate of growth. The amount of knowledge or scientific information doubled every eight or ten years during the last few decades and the time-lag between the appearance of such new scientific discoveries and their being put into practice is decreasing. There is an obvious trend towards a relative increase in the time-lag between the development of scientific knowledge and the inclusion of such new knowledge in university programmes and the teaching-learning process, i.e. this now requires a faster process than before. The ability of the teaching staff to impart the latest developments in their spheres has become more and more critical. The number of research workers as well as the demand for highly educated manpower has grown rapidly. All this has created a new situation for the development of higher education in the world.

Higher education should now be much more flexible and responsive to new social and economic demands than it ever was before. It is high time for universities, as leading members of the higher educational system, to re-think and re-evaluate their role in the overall social development of their countries, including their precise contribution to such development and the way in which it may be made more effective. In other words, the basic question is 'How can the effectiveness of the universities' work be increased in the present situation?'

Our research has produced many examples of the kind of quantitative and

qualitative problems which higher educational systems are facing today—some of the imbalances and difficulties are as follows:

- (a) a disproportion between limited resources and a rapidly growing demand for higher education;
- (b) a contradiction between the rapidly increasing volume of scientific information and the limited duration of formal education;
- (c) a discordance between rapidly accumulating new scientific information and a curriculum slow to change;
- (d) an imbalance between the existing structures of specialities and demands for new structures and qualifications of graduates;
- (e) a discordance between the existing professional training of the teaching staff and the necessity to teach new disciplines;
- (f) a contradiction between the limited material and technical bases of universities and the need to broaden and to improve them in order to increase the quality and effectiveness of teaching and research;
- (g) limited financial resources, in particular the discrepancy between rising unit costs and overall financial needs on the one hand and the rate of growth of the national economy and public budget on the other;
- (h) rapid obsolescence of the organizational structure of the university and the necessity for its systematic improvement. This frequently leads to a conflict between structures which isolate disciplines from one another, whereas, in fact, the need is for greater co-operation among them, for greater interdisciplinarity and multidisciplinary in university teaching and research work;
- (i) a contradiction between old methods of management and the complication of the university managerial processes. A specific aspect that can be mentioned here is the industrialization of research processes within the universities; the use of computers and of the most up-to-date research methods demands, in turn, the most modern management available—if the greatest possible efficiency is to be achieved.

Of course, all the above-mentioned circumstances manifest themselves diversely with different acuity and in various combinations in different countries. Nevertheless, their existence, to a greater or lesser extent, poses new managerial and planning problems for the universities and for systems of higher education as a whole.

Analysis of data which we received from the questionnaires and from the case studies has led to some very important general conclusions which should be borne in mind when considering the problems of planning and management:

(i) Pace of development of universities

The last decade was one of very rapid growth in higher education in all parts of the world and this is likely to continue in the next decade. Serious changes and innovations took place in the systems of higher education in some countries, but this process has in general been at too slow a pace, which in itself has aggravated the situation and given rise to new problems for the development of higher education.

(ii) Quantitative and qualitative aspects of university activities

In the previous decade the universities were preoccupied with dealing with problems of quantitative growth (increase in enrolments, the need to increase the volume and sources of finance, the need to expand facilities, the increase in applications and the need to expand teaching and research staff), but there is a general feeling and belief among the heads of universities that in the future decade the focus of their activities will be on the development of qualitative aspects (these include the need to change the curriculum and university structure to meet changing requirements, to expand numbers and to improve the quality of teaching and research staff). This does not mean that they consider quantitative growth will be less important but that it cannot take place without bringing serious qualitative changes.

(iii) Widening gap between the developing and developed countries in university performance

Despite the very rapid growth of higher education in the developing countries, the gap between their performance and that of the universities in developed countries is not diminishing but widening, particularly in such areas as availability of qualified teaching and research staff, relevant material resources and, as a result, the quality of teaching and training of students and the amount and quality of research work.

(iv) The university and national socio-economic needs

In the majority of universities (with the exception of universities in the socialist countries where overall economic and social planning exists and therefore universities work under both central government and institutional level planning), there is a serious and in many respects increasing gap between their activities and the actual social and economic needs of their countries. Universities do not possess adequate information on these needs and also, very often, their autonomy is used not for establishing closer links between the university and the progressive development of society but for isolating themselves from social and economic realities.

(v) Diversification of higher educational systems

A very important tendency is one towards further diversification of higher educational systems in order to adjust them to growing and more varied demands from different social groups and new types of activities. This development creates an acute need for real integration of the system of higher education—as a simple collection of individual institutions it cannot be organized or modified efficiently. Universities can and in some countries do play a very important part in this process of integration but, where tradition and complete autonomy are considered to be essential to the university, the leading role in this process has been taken by the new types of higher education institution, such as the polytechnical or technological colleges, some of which already constitute the nucleus for a new type of modern university which is more closely linked with the social and economic needs of the country. A strong tendency has also been noticed towards the devel-

opment into university-type educational establishments of those institutions where there is a combination of different fields of knowledge, including natural sciences, social sciences and humanities. This continuous process of diversification and integration means that universities are becoming more and more complex organizations dependent on intricate links and relationships with their economic and social environment.

(vi) Efforts to optimize university dimensions

Another tendency in some countries is that the development of higher education is proceeding at the national level at the same time as attempts are being made by individual universities to limit their size to a definite level and to make the best use of their resources. Therefore, in these cases, development of higher education has meant the establishment of new university-type institutions to meet the growing demand, while existing universities continue their efforts to optimize their activities.

(vii) Importance of higher educational planning for university development

In the majority of the countries in the world, there is no proper higher educational planning at governmental or institutional levels. In those cases where some efforts in this direction have taken place, planning was either indicative in character or there were just some elements of planning at the university level. In general, the management of systems of higher education and of individual universities has a traditional character, and, as a rule, modern techniques and methods of planning and management are not employed. At the same time the opinion is shared by the heads of all the universities in our sample that modern planning and management can and should be used as an instrument for solving the difficult problems they are facing.

(viii) Necessity to develop the university information system

Our basic assumption in this study was that modern university planning and management should be based on an adequate information system and, therefore, the essential factor in the planning of higher education is the amount and quality of information readily available in a useful form for planners and managers. The major conclusion one can draw from our analysis is that the majority of universities, although facing very serious problems in their development, do not have reliable information nor mechanisms to analyze it. This does not mean that they are not concerned about their problems and are not doing anything to solve them; it simply means that they are not taking advantage of modern planning and management techniques and are neglecting to make efficient use of methods which are available.

We are far from thinking that the availability of data on different activities in the university and an information system are one and the same. Not all data are informative. That is why it is extremely important to have methods and criteria for selecting data, the analysis of which will be significant and on which a university information system can be built. In other words, information gives

the basis for decisions and planning, but not the decisions themselves. It is very important to have adequate methods of analysis, adequate criteria for evaluation and also an adequate mechanism for decision-making on the basis of that information.

(ix) Personnel for planning in the universities

In the majority of countries, there is no special training for university planners and administrators. Some universities have taken the first steps and made a study of the situation with regard to university planning. However, lack of properly trained management personnel has meant that many universities work on a hand-to-mouth basis.

(x) University experience in planning and management

It is therefore important that the universities which have accumulated experience in planning their development and modernizing their systems of management in tune with the changing social and economic needs of their countries should generalize their experience and make it available to others. This may provide a spur to the majority of universities in their efforts to modernize their management and planning systems.

Obviously, the above tendencies, their combinations and seriousness are at different levels when the universities are classified into different groups, for instance, by socio-economic structure of the country, level of economic development, geographical location, higher educational traditions, etc.

Deep analysis of the tendencies of higher educational development in different countries and regions must be considered as an absolutely necessary precondition and prerequisite for a serious approach to university planning and management at any level if positive results are to be obtained from utilization of modern management techniques—including planning—in such a specific and very complicated area as university development.

III. The present situation in university planning and management

As one can see from the previous chapter, the universities are developing in a very complex and rapidly changing socio-economic environment which creates not only problems of quantitative and qualitative change in their activities, but also problems of adaptation to the new social and economic needs of their countries.

Analysis of existing information on universities, including case-study reports from different parts of the world, brings us to the conclusion that despite the very rapid growth of higher education and universities, and though serious changes have been made in them, the majority of universities are in principle the same type of higher educational institutions they were several decades ago, and still provide an important part of post-secondary education ranging from three to five years' study. By tradition, they perform two basic functions—teaching, the result of which is the output of graduates specializing as a rule in particular fields of studies; and research work, which contributes to the development of knowledge.

As we see it, the characteristic features of the modern university which attempts to meet new socio-economic requirements should be as follows:

- (a) A teaching process with content and method based on the latest results of scientific research and with a permanent renovation of curricula and methods of training;
- (b) A sizeable volume of research work; a combination of many different branches and fields of study facilitates the execution of complex research projects, especially at the meeting-point of different sciences;
- (c) An organic combination of teaching and learning and scientific research work, which supplement and enrich each other. This provides for a truly creative atmosphere at the university and inspires students to seek, acquire and apply new knowledge. This is extremely important in the modern world, since it is impossible to provide students with working knowledge for the whole period of their active lives; for this reason, it is important to educate them in such a manner as to enable them to renew their knowledge and to continue their self-education;
- (d) Training of specialists at the graduate level for research and development, for teaching at higher education institutions and for managerial and other positions requiring advanced training; a high proportion of graduate students;



- (e) An important role in the training of teachers for all levels of the educational system;
- (f) A leading role in renewing and improving the qualifications of specialists in different branches of the economy, science and culture, including the whole system of higher education;
- (g) A leading role in the preparation of textbooks and other instructional materials for the whole system of higher education and for the general secondary schools;
- (h) An increasing volume of activity necessary for the maintenance and running of the teaching process and research work;

In our research, we have found that only a few universities have all or most of these features.

Special analysis of the priorities given by universities to different activities shows that they consider they have two basic functions—teaching/training and research. This is the opinion of all the universities with slight differences in ranking in various sub-groups of universities, for example, European universities consider that research is their top priority with teaching of graduates following, while in Africa and South America teaching of undergraduates is the first function. Both these functions may be divided into several sub-functions—in most universities the teaching function includes undergraduate and graduate teaching and at some universities different kinds of refresher courses are given. The research function as a rule includes basic and applied research and, in a few cases, development. The interaction of these two functions contributes to the high quality of both but there is a tendency in some universities in the developing countries for the importance of research to be under-estimated and insufficient attention is given to it. The other extreme can be found in the developed countries where sometimes research is given such a high priority that it loses its links with the teaching process.

Mention was also made by some authors of service to the community as a basic university function, but we could not find any internal process at the universities which gave evidence of this and, in our opinion, it is in fact only a by-product of the above-mentioned two basic functions.

Analysis of the activity of different universities shows that there are four components interacting in the process of performing both teaching and research work; the formation of these components can be considered as sub-functions of the university or functions which provide the necessary conditions for the university's basic work. These are:

- (a) *University personnel*, including teaching and research staff and supporting personnel;
- (b) *Students*, including undergraduate, graduate and different kinds of special students, and those who attend refresher courses;
- (c) The *material basis* of the university, including teaching and research space, equipment and its support, libraries and computer centres;
- (d) *Finance*, including capital investment and recurrent expenditure.

All these components interact in the work of the university but their involvement in teaching or research work is different and determined by the aims and objectives

of the university. *The maintenance of the interaction between the different components in order to achieve given aims is the function of university planning and management.* In other words, *university planning and management must create the necessary conditions to achieve university aims by analysing existing resources, putting them together, establishing control of their utilization and creating a feedback mechanism for flexible correction of plans and decisions in the process of university functioning and development.*

However, in most of the universities participating in our project, the different functions and sub-functions of the university are considered, as a rule, separately and there is no unanimity in interpreting the role of planning and management. The most characteristic approach is piecemeal with different problems being treated separately and without taking into consideration their interdependence and inter-relationships. Even at those universities where planning offices exist, they are generally involved in investigation of different areas which are causing particular difficulties at that time for the university and in collecting data on that problem without creating a comprehensive planning system which would bring all the aspects of the university together in a continuous planning and evaluation process. The work of the planning office is often considered to be finished when it has produced documents called 'plans' and it is not subsequently involved in the process of implementation of these plans after they have been adopted. It has been shown that those planning offices which are part of a comprehensive planning system devote not more than 25 per cent of their time to the preparation of plans and approximately 75 per cent is given to the control, correction and co-ordination of implementation of the plan, and analysis of current information.

In other words, universities generally consider the function of their planning bodies as a very limited one. The lack of attention to the important links of the different functions and activities of the university with other components can be seen from the following sections.

1. Access to the university and employment of graduates

When we studied this problem at several universities in the developing countries, we found that as a rule three major factors are taken into account:

- (a) Demand for higher education from the population;
- (b) Manpower demand for graduates in particular fields of work;
- (c) University facilities, including teaching staff, space and finance;

However, there were only a few cases where all these factors were balanced when access to the university was being organized. Either one or two of them—usually social demand and availability of resources—were taken into account and in the majority of cases, with the exception of universities in the socialist countries, no direct link was made with future manpower demand. The view generally held in the developing countries was that the demand for graduates was much higher than the supply and therefore detailed planning was not needed. This underestimates the great necessity, particularly in the developing countries, for closer linking of university activity with national economic needs. It is well

known that some countries are already facing the problem of the highly educated unemployed.

Another result is that the whole teaching and learning process is not properly oriented, neither is there any orientation of secondary school pupils and university students towards particular fields of studies which are or will be in great demand in the future. Sometimes only the relative costs of training in different fields of study are considered as a decisive factor for the distribution of students, without serious thought being given as to the potential contribution of these graduates to the development of the country.

Admissions procedures generally are very varied but it can be said that in most cases they are traditional and inflexible in social terms, which in many cases prevents under-privileged groups from obtaining university education.

As for employment of graduates, most universities in non-socialist countries do not consider that provision of employment is a university function; only in a few cases, where there is no national manpower planning, do they make attempts to evaluate potential demand for graduates by collecting information from industry, from the government and from professional societies, or they conduct surveys of former graduates (as described in the case study from the Federal University of Bahia, Brazil). These types of surveys usually provide data about the present situation of the labour market but not about future demand for different types of specialists.

Although the above facts do not paint a very hopeful picture, at the same time, there is evidence that the universities are realizing more and more the necessity for closer links with socio-economic demand, and manpower demand in particular, especially since higher education is becoming available to a greater number of people and is not just catering to the élite as formerly. It is now an important instrument for national social and economic development.

2. Teaching work

From an analysis of planning and management of one of the basic university activities—the teaching-learning process—one can see that efforts to plan and orient this activity are still at a very early stage. Universities organize individual components of the teaching process but very rarely apply a systems approach; they either consider it as planning the curricula or planning use of new educational technologies. Very often they have no clear idea as to the kind of graduates they wish to produce or for what purpose they are educating them, considering it to be the individual student's affair to choose what he learns. The combination of theoretical and practical work is determined in some cases not on the basis of the optimum correlation, but on the availability of teaching staff, space or equipment.

The teaching work is not generally considered as a teaching-learning process in which not only the teachers but also the students play an active part: there are no norms determining the amount of work of the teachers or students and no reliable mechanism to guide and control the teaching-learning process. It is

considered that quality is guaranteed by the level of qualifications which the teaching staff holds and only a few universities make efforts to measure the real contribution of senior teaching staff and to optimize the composition of their staff from the point of view of its quality for different types of teaching work. In most cases no kind of special pedagogical training is given to staff.

3. Research work

As for this basic function of the university, we found that although it was considered to be of high priority, in the majority of cases no serious attempts were made to link it with the teaching process. Very often, instead of contributing to the quality of teaching, research work diverts resources away from it. In other words, the whole range of questions regarding optimization of the interaction of teaching and research work at the university remain unanswered.

And as to planning and management of research work, one can see from the case-studies on this problem which were carried out in Pakistan, Japan and the United States of America that initiation of particular research projects is the responsibility of individual staff members and there is no organized conscious orientation of research, either to clearly defined scientific, technological or economic needs of the country, or to improvement of the teaching-learning process.

Also there are no established mechanisms for evaluation of the amount and especially the quality of research, despite the fact that the results, or more precisely the publications of results, are considered as a basic criterion for judging the quality of the staff and for promotion.

In many universities not only undergraduate but also graduate students are not involved in the serious research work going on at the university. As a whole, information concerning research work is very scarce (despite the importance given to this function by all universities) and in addition it is not considered to be necessary for the university to enquire about or to control this activity too closely. Here the excessive autonomy and independence of researchers is very often contradictory to the necessity for rational planning and for controlling the utilization of large material and financial resources. In many universities in the developed countries, these research resources are equal to or even exceed the resources utilized for the teaching work.

4. Teaching staff formation

On studying the problems of teaching staff formation, we found that it is considered by the heads of many universities to be an activity which is not necessarily very closely linked with the teaching and research process. Most universities do not have long-term prognoses of the demand for teaching staff and this prevents them from making conscious efforts to optimize the composition of the teaching staff from the quantitative and qualitative points of view. They do not set norms for the work of the teaching staff nor do they have a clear distinction between the functions of the staff at different levels; the distribution of the teaching load,

even when the quality of the staff is taken into consideration, is very unequal, ranging from zero to twenty-four contact hours a week.

There are no clear plans (with the exception of socialist countries) for systematically improving the qualifications of the staff and, as a rule, no system of objective evaluation of the quantity and especially the quality of the work. Only 26 per cent of the universities replying to the questionnaire stated that they knew the distribution of time spent by their staff on teaching/research/other activities.

The situation in those developing countries investigated is that they are preoccupied, not with possible future needs, but rather with trying to catch up with the present requirements for staff. They therefore do not have any clear perspectives in this field.

It must be stated that the quality and the amount of teaching, research and other types of work performed at the universities depends on the quality and quantity of the teaching and research staff, its composition and the organization of its work. Proper policies and planning of teaching staff formation can make a significant contribution to this.

5. University information system

It is clear that no planning or management system can be developed without proper information. For planning and managerial purposes the universities need knowledge of the following three areas:

- (a) The environment and the social and economic needs of the country;
- (b) Internal processes taking place inside the university (in the fields of teaching and research work and other university activities) for achieving clearly stated aims reflecting the socio-economic needs of the country;
- (c) Methods and techniques of planning and management.

From the case studies which have been carried out for the project, it is clear that the universities have a poor knowledge of their social and economic environment and in some cases base decisions on intuition rather than on statistics. Only 16 per cent of the universities taking part in the questionnaire had adequate information on the number of graduates in relation to the demand for them.

As for the internal processes, there is not only a great lack of information here but also inconsistency and uncertainty due to the fact that information originates from different offices inside the university and the same criteria do not apply in the different units. It can be said that most universities do not have information *systems* as such, and certainly not information systems oriented towards achieving determined aims and objectives.

As to modern planning and managerial techniques, lack of exchange of information has meant that universities often invent different techniques without being aware of existing experience in more advanced universities or other types of organizations from which they could learn. Some universities are making serious efforts to work out systems of indices and criteria and methods of processing information—for example, those described in the case study from the Western Australian Institute of Technology. Others have experimented with computerized

information systems—the experiences of Louvain and Humboldt Universities in this regard are also described in the case studies.

At the same time, all universities are agreed that something should be done to develop an information system and to improve the decision-making processes of planning and management. This problem becomes more and more acute with the increasingly rapid growth in the amount and complexity of university activities. It has been calculated by some managerial experts that, even in industry, an increase of 40 per cent in production results in doubling the amount of information needed. Because of the more complex nature of the universities one can assume that this correlation is even greater and the decision-making process more difficult. However, it should be pointed out that this is a problem which cannot be solved by increasing the number of clerical and managerial staff alone.

To summarize the basic difficulties in the development of university planning and management, we have found the following to be widespread:

- Lack of an adequate information system;
- Lack of special methods of processing the information relevant to the peculiarities of the universities;
- Inadequacy of methods of decision-making;
- Inadequacy of feedback mechanisms in planning and management.

The whole range of problems relating to the university information system require more study, which must take into account differences in the social, economic and political structures of different countries and of their educational systems.

Analysis of existing mechanisms and methods of university planning proves the need to distinguish between national higher educational planning and planning at the institutional level, because as a rule, only a combination of both central planning and institutional planning gives the best results.

Both in theory and in practice, one can distinguish three different situations of university growth and development:

- (a) Growth and development with practically unlimited resources. This is a situation where planning and management deals mainly with extrapolation of existing tendencies. It is apparent that many university administrators follow this pattern even in situations where resources are limited.
- (b) Planning and management where some resources are limited, e.g. such as number of highly qualified teaching staff, space, finance, etc. In this situation, one of the major problems for university managers is the re-allocation of resources in order to compensate for limitations.
- (c) Planning and management where all the resources are limited but the universities have to meet an increased demand for places and have to ensure continuity of high quality teaching and research. This is the most difficult situation for university heads because it means not only quantitative but also qualitative re-allocation of existing limited resources.

The most typical of these is the last situation.

This study deals mainly with educational planning at the institutional level but at the same time it is clear that this is predetermined by the national context in

which the university is developing. Because of the wide variety of national contexts and differences in planning and management at the institutional level, our research has uncovered some very varied pictures of university planning and management. From the point of view of the planning system in which they are working, five groups of universities can be discerned:

- (a) Universities working under both central and institutional planning—such as exists in the socialist countries. Here universities are just part of the overall economic and social planning; they have clearly defined aims and objectives for their development and rather sophisticated methods and techniques for planning and implementation.
- (b) Universities working under central planning only, which means to say that national indicative planning exists but there are no direct links between planning at the national level and the development of individual universities.
- (c) Planning (indicative as a rule) at the level of individual universities but no kind of planning at the national level. These universities have very serious difficulties in defining the aims and objectives for development in the absence of clearly formulated national objectives. They are thus prevented from establishing relevant links with their environment and determining the priorities of their work. Planning at these universities is in most cases short-term and preoccupied with rectifying current problems.
- (d) Universities with only some elements of planning (also indicative) find themselves from the point of view of planning and management in an even more difficult situation. For them, the piecemeal approach to planning is characteristic—particular aspects are planned without a proper evaluation of university inter-relationships.
- (e) Universities with no planning at all—in their day-to-day activities they cope with their current problems without attempting to apply modern techniques of management.

As one can see, there is a wide variety of situations ranging from comprehensive university planning to no planning at all. In fact, for the purposes of this study, one can distinguish between comprehensive socialist-type planning and indicative planning as used in some capitalist countries. It is important to ascertain the type and degree of planning at present obtaining when working out recommendations for university planning and managerial mechanisms.

Only the development of comprehensive higher educational planning at the national level oriented to the achievement of progressive national aims and goals can create a favourable climate for planning at the institutional level. However, some experience of the universities working under different systems of planning can be applied and used by others but in all cases very serious thought should be given to the applicability of the experience of other universities to the particular situation of the university wishing to make use of it.

That the existing experience of university planning can contribute a great deal to the development of universities generally is an opinion which is shared by the majority of universities participating in our project.

IV. Quantitative and qualitative aspects of university planning (some methodological questions)

The guiding principle in university life is—or should be—the maintenance of the high quality of its performance. This raises the most difficult question of measuring not only quantitative aspects of university growth and development but also qualitative changes, which, as the case studies and replies to the questionnaire show, are the major methods for bringing the universities closer to meeting national social and economic needs.

Certainly one should not develop either at the expense of the other, but unfortunately our research has shown that for some universities rapid quantitative growth had brought a deterioration in quality. This brings up the question as to what level of quality the university should maintain—whether it should be the standard achieved in universities in the most advanced countries or whether it should be a standard determined by the economic and social needs of the country. Our opinion is that the decisive criterion should be the second one, but since universities co-operate together as part of an international community, relevant attention should be given to the first criterion too, since it is necessary for the exchange of scientific information, teaching and research personnel, students, for establishing the equivalency of degrees and diplomas and co-operation in other fields of university activity. All this involves the quality of teaching and training, research work, teaching staff and quantity and quality of material resources, and so on. Methods for their analysis have to be evolved to measure university performance and to plan further development.

A brief discussion of quantitative and qualitative aspects of university planning raises the more fundamental question of *the concept of higher educational planning*. As one can see from the different attitudes to similar problems in the universities, and from existing literature, there is no uniform opinion about the substance of university planning. It is typical for it to be treated either as financial planning, physical planning or sometimes as curriculum planning, but a comprehensive approach is rarely found and exists only in the socialist countries.

From our point of view, university planning should start by determining a content of education relevant to the progressive scientific and technological, economic and social development of the country. Other aspects and constraints, such as the pedagogic, economic (both external and internal), social, cultural,

political and ideological, have to be taken into account. The interaction of all these constitutes a whole and comprehensive picture of university development which alone will give the basis for working out a plan of development which will be realistic and contribute to the fulfilment of the university's social role. The degree to which all elements are taken into consideration will determine the degree of optimization of planning and management. In other words, *higher educational or university planning should be based on a systems approach, which takes into account the interaction of different activities, components and units, and on which university priorities to achieve aims and objectives can be based.* This inevitably means that for many universities the problem is not just to adapt existing methods of planning to their old traditional organizations and structures, but to change their structure in order to be able to apply modern planning and management methods and techniques.

A higher educational system is a complex multi-functional and multi-step system, a model of which would contain a variety of interacting models of different processes, material structures and the dynamics of resources. Obviously one cannot wait until each model or method in higher educational planning is brought to perfection in order to apply it. Optimization of models can be achieved in the process of their development when they come face-to-face with reality.

The individual university can also be considered as a complex multi-functional and hierarchichal system which has many interconnexions between different structural elements. It can be divided into sub-systems of different ranks.

The two main sub-systems, corresponding to the two basic functions of the university—the teaching-learning process and research work—include undergraduate and graduate studies and refresher courses, and basic, applied and sometimes development research. Within these sub-systems are four others relating to the four basic components of the university, which in their inter-action determine the performance of the two basic functions. These are—university personnel, students, material resources and finance.

The direction of the teaching-learning process and research work and their quantitative and qualitative characteristics should be based on analysis of the trends of national social and economic development and of scientific and technological progress, which should provide the university with information as to the dynamics of fields of studies, the requirements for various types of graduates on which models of future specialists can be built, and the dynamics of the demand for specialists. Analysis of these factors from the point of view of research work at the university will provide guidelines for the direction of research, information on the scientific potential both of society and of the particular university, and data on demand for the results of research work—all of which determine the quantitative and qualitative requirements.

The requirements to be met by both the teaching process and research work can be set only by aking into consideration the following factors—social or political, demographic, scientific and technological, and resource constraints—which make their influence felt through the above-mentioned four basic components of the university.

The products of the teaching process are graduates, specialists in different fields of studies, including graduates from higher levels of study, and research workers, who are the product of university research work as well. Both the graduates and the results of research contribute to national socio-economic and scientific and technological development and as a final result to growth of the national income. This in its turn changes the constraints and limiting factors for the development of higher education.

Analysis of relationships and feedbacks among the elements of the system and sub-systems is a necessary prerequisite for comprehensive university planning. The most important elements of the analysis and basis for decision-making are the criteria for measuring the effectiveness of the interaction of different elements. These can be divided into two groups—those for measuring internal efficiency and those for measuring external efficiency, e.g. the contribution of the university to overall national needs.

Forecasts of the development of higher education play a very important part in the concretization of this model, its dimensions and dynamics. Long-term forecasts provide a basis for detailed long-, middle- and short-term planning, and they should isolate, analyse and work out quantitative measures for the following factors:

- Rate of growth and forms of development of the teaching and research work at the university based on the rate of growth of national scientific, technological and economic development;
- National manpower demand for highly qualified specialists;
- The dynamics of expenditure on higher education and research.

By expert evaluation, it is possible to identify the basic qualitative changes which will take place (forms of organization, material resources, interaction with the development of the overall system of higher education, etc.). Then these should be checked against the overall demographic, social, scientific and technological tendencies in the fields relevant to a particular university. Next, the basis for forecasting qualitative indices for teaching and research should be established.

Any type of forecasting for the development of complex systems includes three groups of predictions which are linked with each other:

- Forecasts of aims and results of development based on working out alternative aims and choosing the most preferable, and in formulating models of the operations which this system serves. This is the *operational type of forecasting*.
 - Forecasts of the technical ways and means of achieving aims and objectives based on formulating programmes of the development of the system. This is the *programme type of forecasting*.
 - Forecasts of material, manpower and financial resources needed to implement the programmes—this is the so-called *organizational economic type of forecasting*.
- In the process of working out forecasts, the optimum programme can be chosen from among the several alternative aims or programmes according to accepted criteria of efficiency. The choice of optimal aim or programme, whichever criteria of efficiency are used, is either based on minimization of resources needed or it is based on their limits. It is well-known that for higher educational institutions the

problem of resources of all types—including teaching staff, facilities, space and finance—is felt as a particularly severe constraint.

Three methods of forecasting may be used—*extrapolation, expertise, and model building*, but from our point of view a *combination of all three methods should be used in any prognosis of the development of a university*. For example, in forecasting the forms of interaction of research and the teaching process, the most suitable method is expert evaluation; for short-term forecasting of outputs from the university—the number of graduates, etc.—extrapolation can be used; but for the long-term the most suitable is the model-building method.

The prognosis will be well grounded if it is based on a deep analysis of qualitative and quantitative changes which can be foreseen for a planned period, and here we return again to the general problem of the combination of quantitative and qualitative aspects in university planning.

As to the role of indices and criteria in university planning, it is obvious that *any kind of model for university planning should be based on a system of indices and criteria* to choose the aims and objectives and to evaluate results. Because of the multi-functional nature of the university system, there should inevitably be a system of interdependent criteria, characterizing both quantitative and qualitative aspects. Norms are another necessary element of planning which can provide a basis for comparison of real performance with planned targets.

In our opinion the planning process at the university should include the following stages:

- (a) Formulation of aims and concrete objectives for the university with the participation of all internal units and of relevant external organizations;
- (b) Drawing up of the various plans for different units of the university;
- (c) Integration of plans of units, during which questions of division of labour, of co-operative use of resources and facilities, etc., will be resolved;
- (d) Elaboration of a general plan for the whole university which will embrace all individual unit plans, not merely as a matter of mathematical addition, but as an equation which will itself be part of the plan for development of education in the country. One of the basic aims of this stage is optimization of the plan according to given criteria both for the university as a whole and for its units;
- (e) Implementation of the plan and possible revision or modification of it on the basis of feed-back mechanisms;
- (f) Evaluation of the implementation of the plan.

One can see from the case studies and from existing literature on institutional planning and management that this type of 'ideal' model for university planning is not yet applied in practice (with the exception of universities in the socialist countries) but at the same time elements of it have been found in analysis of the teaching-learning process and in the organization of research at the universities.

The most realistic way to start planning at universities which do not have any experience of this activity is to use methods of planning, in the first place, for solving some particular problems of individual university units. Afterwards the number of factors and variables taken into consideration (internal and external) can be gradually extended. Then one can start the planning of individual functions

of universities and, finally, comprehensive planning of the development of the university as a whole in the general context of the national higher educational system.

1. The teaching-learning process

As has already been mentioned, planning of the teaching-learning process in the universities we have studied is generally inadequate. The present situation of rapid scientific and technological development requires the adoption of a new approach, which might be described as an attempt at optimization. It should be pointed out that it is no longer sufficient to consider this basic university activity only as a teaching process; it is in fact a teaching-learning process with the full participation of the two human elements—teachers and students—whose work is supported by material resources, techniques, space, etc.

The case studies relating to the organization of the teaching process and teaching staff formation show that universities make some efforts to organize material resources supporting the teaching-learning process. They do in fact have some norms for material and financial aspects, but it is surprising that methods for measuring the activity of the two major participants—teachers and students—are almost non-existent. Certainly, there are some requirements concerning the number of contact hours for teachers and the number of courses or credits which students are expected to obtain, but first, in most cases it is not quite clear on what objective basis these requirements have been established, and second, they appear to be very far from the reality. The teaching staff, its time and efforts, as well as those of the students, together with proper evaluation and combination, can make a major contribution to increasing the efficiency of university activity.

One of the basic tasks in *optimizing the teaching-learning process* is to improve forms and methods for absorbing the increasing amount of scientific information which is necessary to produce a well-trained graduate. This would include optimization of:

- planning of the teaching work;
- organization of the individual work of students;
- the system of technical support of the teaching-learning process;
- working conditions of both teachers and students.

It also necessitates clear definitions of the aims and objectives of the process; investigation of pedagogical and psychological aspects, and the development of a model of the teaching-learning process which takes into consideration both qualitative and quantitative aspects, establishing a balance among all the elements involved.

An extremely important result of this work must be the development and formulation of curricula for different fields of study which reflect realistically evaluated future needs for graduates and requirements for specialists.

Experience in higher educational institutions of the Soviet Union demonstrates that a very important prerequisite is working out *models of future specialists*, i.e. the type of specialists which will be needed in the future. From this information

a model of training requirements can be worked out which, in its turn, has logical consequences for optimization of the teaching-learning process.

(a) Students

In this process, optimization of the individual work of the student becomes more and more important. It is clear that *the major aim of university education is not just to provide students with a definite amount of existing knowledge but to develop their creative abilities in order that they will continue their education throughout the whole of their active life.* The rapid development and obsolescence of knowledge makes this an absolute necessity. Serious efforts should therefore be devoted to the pedagogics of higher education in order to ascertain the most efficient methods of transmission of information to students, and methods of motivating and stimulating their ability to evaluate and critically absorb it. This would also include work in improving methods of controlling the students' activity.

As for optimization of technical support, there are at least four questions which have to be answered:

- the place and role of new technical media in the teaching-learning system;
- the advantages of their application;
- economic expediency;
- psycho-physiological characteristics of students.

In this connexion, the case study from the University of Ife makes interesting reading—here the students dislike forms of classes in which they have to participate actively and make little use of library facilities. Some considerable advantages might be gained by encouraging individual studies with the use of technical media.

With regard to the organization of the working conditions of students, this is based in most cases on external factors necessary for teaching, and very few efforts are undertaken to try to measure the psycho-physiological abilities or limits to absorbing and transforming information into active knowledge. It is obvious that without solving the problem as to the maximum amount of new information which the student can absorb within a given time and without methods of guiding the cognitive activity of students, it is impossible to set objective norms and criteria for evaluating the amount and quality of work. Research done in this direction should be made use of by university planners.

The time which students spend in learning, both in and out of the university, and on other activities connected with their studies should be the object of organization and planning. This is especially important in order to advise students how to distribute their time in the best manner. Obviously we do not recommend applying the same standards to all students, but we do recommend the working out of principles and methods of measuring student activity and ways of optimizing it. These will help in the distribution of work over the different days of the week and in establishing the optimum sequences of 'easy' and 'difficult' courses, and the different forms of teaching—lectures, seminars and so on.

(b) *Teaching staff*

Since the *teaching staff are one of the basic university resources*, optimization of their work should be a major university preoccupation, but it is plain to see from the replies to the questionnaire and from the case studies that only a few universities make serious efforts in this direction. The quantity of work is measured generally by the number of contact hours and the quality by results of research work (in quantitative terms by number of publications) and also in many cases by the results of the students' examinations. Some universities do have very sophisticated procedures for evaluating the work of university staff for promotion purposes (the University of the South, Argentina, case study), but even so a traditional approach depending mostly on seniority dominates. However, *universities face very serious difficulties in trying to introduce elements of planning into the work of the teaching staff*. Some of them have said that administration meets resistance from the staff when attempts are made to evaluate teachers' performances in quantitative and qualitative terms or to establish norms for their work (Buffalo and Cairo case studies).

Also the work of the university staff is multi-purpose and it is therefore not feasible to apply one criterion to the different types of work of staff members, even if they would accept it. Most universities report that there is no systematic control of this work, and without control, a feed-back mechanism for planning their activities cannot be established. In the face of all these difficulties, evaluation is mainly attempted by expertise and usually only at the time when questions of recruitment, promotion, etc., are being discussed. Expertise should, of course, be the basic method of evaluation but it should go further than just evaluating individual members or individual phenomena at the university. More general conclusions with regard to quantitative norms and indices can be drawn from it. If these are not used, there is a danger of error and subjective judgments being made; for instance, in the work of the committees appointed for promotion or recruitment purposes by the universities taking part in our research project, it is difficult to find any very clear-cut criteria on which their conclusions could be based. Certainly correct indices characterizing the different aspects and weight coefficients for each of them are difficult to establish but one can distinguish five basic elements which are typical for the activities of all members of the teaching staff:

- Teaching duties;
- Preparation for teaching duties;
- Research work;
- Organizational and administrative work;
- Improvement of qualifications.

On the basis of expertise the importance and weight of these elements in the work of staff members of different qualifications can be quantified. These expert conclusions can be discussed by all members of the staff and can be refined in the process of their application. The weight coefficients can be used by university management as a kind of lever by means of which the work of the teaching staff can be moved in the right direction.

However, this method of quantitative evaluation only partially reflects the quality and this can be corrected by proper appraisal of the results of research and by direct control of the teaching work. Staff members can make an important contribution by taking part in mutual evaluation of their work (see, for example, the case study from Humboldt University), but comprehensive control would be exercised by an inspectorate appointed to evaluate not only the work of the teaching staff, but other sides of university activity.

The whole spectrum of questions relating to the criteria and methods of training, recruitment and improving the qualifications of teaching staff should be given much more attention than is the case now in most universities.

A combination of norms for the work of teachers and students, with norms for the different types of material resources needed for the teaching process, can create the basis for proper analysis, evaluation and planning of the teaching-learning process at the university. For some universities this would not create great difficulties, since some elements already exist, particularly in the areas of space utilization, computerization of time-tables, etc.

2. Research work

Research—the second basic function of the university—is closely linked with the teaching-learning process. Replies from the questionnaire and case-study reports have shown that in those universities which were able to give some information on their research activities, this function is considered as very important and in some cases as most important. Also it can be seen that the amount of research work in terms of financial, human and material resources, is growing, both absolutely and very often relatively. Growth brings with it much more acute problems of planning and management as well as the necessity to answer the question of how to measure the effectiveness of this activity. These two problems cannot be separated because the first should be based on the second if an optimum result is to be achieved. There are several important questions which should be answered before proper planning of research work can be introduced:

- What is or should be the optimum correlation between the teaching-learning process and the amount of research work at the university?
- what are the indices and criteria for quantitative and qualitative evaluation of research?
- what methods can be used to calculate the effectiveness of research?

It is evident that generally planning of research work at the universities is still at an early stage and many university heads do not have clear ideas on it. Normally, it is based on the initiative of individual professors interested in various problems and is not co-ordinated, even within the framework of individual departments or faculties. As a result the universities have large numbers of small projects and resources are dispersed instead of being concentrated on solving the most important and pressing problems.

Co-ordination and co-operative use of research resources at the university can be achieved only by elaboration of plans based on long-term forecasts of national

scientific and technological development. Certainly *planning of research work* cannot be interpreted as an attempt to predict the results of research on different problems, but it *should have as its main aim the planning of conditions and resources favourable to the development of research work in specific directions needed for national development and for training specialists*. Planners therefore require definite classification of different kinds of research. One of the basic criteria for measuring efficiency should be the closeness of the relationship of research results with material production, so that classification is required under basic, applied and development research groups, with sub-groups in each category.

Measurement of the efficiency of research is a difficult question since usually it has not only *a direct economic effect* (perhaps sometimes there is no such immediate effect), but also has *a scientific/technological effect*, i.e. contribution to the development of knowledge or to technology, or to higher education, etc. This kind of contribution cannot be directly measured in monetary terms. Both types of effect are typical for all kinds of research but their proportion is different in basic, applied or development research. The direct economic and accompanying effects (improvements in the teaching-learning process, in the qualifications of staff) should be taken into consideration when planning research work at the university.

As with the teaching-learning process, one cannot apply only one criterion—research is also a multi-functional activity. Methods of evaluation of the direct economic effect derived from utilization of research results are more or less known, but even they are rarely applied in universities; as for methods for evaluating the accompanying effects, they are still to be worked out. However, some of the higher educational institutions in the Soviet Union apply the following *system of co-efficients* reflecting the contribution of different factors to the accompanying effects of research work. These are:

- Conformity of themes of research projects with the profiles for training specialists;
- Level of qualification of teaching and research staff;
- Students' participation in research work;
- Proportion of the results of research work utilized by industry;
- Amount of research per teacher or research worker;
- Influence of research publications on the efficiency of research work;
- Percentage of graduates who completed their theses within the given time;

The weights of all these co-efficients can be established by experts on the basis of analysis of reports of previous research work carried out in the university, taking into consideration future objectives in different fields of research. Changes in the weights of co-efficients may stimulate the development of research in a given direction.

One of the very important prerequisites for planning research and for increasing its efficiency is centralization of research resources (as some of the case studies suggest), correct evaluation of research potential and centralization of decision-making in which all interested parties participate.

A similar approach can be used to work out quantitative indices for evaluation of the activity of different units inside the university (research groups, departments, faculties) and for this operations research can be undertaken by groups of experts. Such analysis should enable a model of any unit inside the university to be built and criteria for evaluating its activity to be established. This is certainly the main and most complex part of pre-planning, for the number of factors to be taken into consideration will be different for the different departments and for different levels of planning.

Only on the basis of correct correlations between the factors involved in the teaching-learning process and research work can balanced development of both basic university functions be achieved.

3. Access to the universities and employment of graduates

Several case studies on this particular problem proved the importance of this aspect for organizing all the other activities of the university and especially for planning the teaching-learning process, teaching staff formation and utilization and allocation of physical and financial resources.

The most important lessons to be learned from the studies in order to improve university planning and management are the following:

- (a) Planning access to the university must be linked with the employment of graduates, while planning of the 'final product' of the university—proper number and 'mix' of graduates—must become a guiding principle of university planning;
- (b) Planning the employment of graduates must be based on reliable long- and medium-term manpower forecasts or at least on projections. A manpower approach towards university planning must be a necessary precondition for proper orientation of university activities to better meet the socio-economic needs of the country or region and to avoid so-called 'intellectual unemployment' or shortages of specialists in some fields;
- (c) More attention must be given to professional orientation of pupils at the secondary school level and at entrance to university;
- (d) More attention must be given to the criteria and procedures of admission to universities, which should be combined with work on improving the whole process of selection of students for different fields of study in order to better meet the social and economic demands of the country;
- (e) In cases where there is no manpower or general economic planning, universities may organize their own surveys of the situation in the labour market and orient their admission policies accordingly.

Only when all these factors for planning access to the universities and employment of graduates are taken into account together, can a better balance in the development of the university as a whole be expected.

V. The university information system for planning and management

We have already pointed out that in order to be efficient, the university planning and managerial system should be based on an adequate information system. The process of improving and adjusting both these systems is as continuous as the development of the university itself. The new conditions in which the university finds itself create new requirements and we do not pretend here to give a definitive description of the best type of information system because this does, of course, depend on many variables and can be based only on analysis of a concrete situation.

In very general terms, the essence of planning and management can be reduced to the problem of collecting, selecting, processing and evaluating information both from inside the system itself and from outside agents for the purposes of decision-making. In other words, any kind of management makes the following demands:

- Definite regulation of information flows reflecting the hierarchical structure of the organization;
- Effective means and methods for selecting, storage and processing of the information;
- Criteria in accordance with which evaluation and elimination of different information takes place.

One very important prerequisite for development of the university information system is *its accord with the aims and objectives of the organization*. It should not just give data on existing parameters of university development but should also *reveal new tendencies*. To build up an information system, one should not only know whether some types of information exist and whether they are adequate, but also whether the amount and type of information is *adequate to ensure optimization of university planning and management*. It is therefore necessary to consider the university as a complex cybernetic system which is based on a clear formulation of aims for development and criteria to ensure maximum optimization. It is known that the stability of any cybernetic system is determined not by average statistical characteristics but by the limits of tolerable load for the weakest point of the system. The information system should be able to identify these points. The other important requirement is to provide adequate feed-back mechanisms for the decision-making and planning processes.

The information system should start by providing at least a minimum amount of information necessary for university planning and management from which point it can be developed to optimum dimensions. From the very beginning, the *uniformity of different types of information and centralization of storage* must be maintained.

From our research, it is obvious that existing methods of collecting and processing information are inadequate to meet the new demands made of it, to cope with the rapidly increasing amount of information and the new planning and managerial problems arising from it. However, in some countries very interesting attempts are being made to create *automated university information systems* on which an *automated system of planning computation* can be based. Up to the moment only a beginning has been made in this direction, in that just a few elements exist which sometimes seem to be rather expensive, but the experience of the more advanced universities in this field has shown that an automated information system becomes more effective only after integration of the most important university sub-systems has been achieved.

The sub-systems into which university activities can be divided are:

- teaching-learning process;
 - research work;
- both corresponding to the two basic functions of universities, and
- staff,
 - students;
 - material resources and facilities, including libraries, documentation and computer centres;
 - financial resources.

These sub-systems correspond to the basic elements interacting in the process of performing the above functions of the university.

Serious work on several of the above sub-systems has been done by some of the authors of case studies written for this research project. From the Louvain case study, one can see the types of problems which have to be faced in the creation of an automated information system—it cannot be created overnight—the sequence of work should be decided by certain sectors and later on the various sector information systems can be combined. The work involves re-evaluation of the whole amount of data characterizing different processes and revising of the whole system of documentation.

The Buffalo case study describes the experience of introducing computers for processing data concerning admissions of students. Similar work is being carried out at the Middle East Technical University and both case studies fully illustrate the advantages to be gained from this innovation.

Computerization of the planning of the teaching process has been developed at Humboldt University and one can find many more examples of this kind of work. In the USSR, for example, the Ministry for Higher and Specialized Secondary Education has decided to complete the whole complex of theoretical and preparatory work for the creation of an automated information system on higher education during the period 1971-75. Research is therefore very active in this

field and is at present being carried on in more than eighty higher educational institutions—fifty-three of them are working on problems relating to an automated system of registration and analysis of current progress and final results of students' work; thirty-five of them are experimenting with such a system for registration and analysis of the results of entrance examinations; more than thirty have started work on staff and student sub-systems; ten are working on problems of automated registration of their planning, financial, research and publications activities.

Some of the institutes, such as the Tomsk Polytechnical Institute, have worked out a system of indices and a system of analysis and evaluation of the activity of different units inside the Institute. Also, thirty institutes are working on the utilization of computers for the preparation of time-tables.

Work on the development of university automated information systems has proved to be difficult, but at the same time for relatively big universities such systems seem to offer the most promising answer to their problems of planning development. Exchange of information on work done in this direction can make a great contribution to the modernization of university planning and managerial mechanisms in all parts of the world.

VI. Indices and criteria for evaluation of university development

The university information system can function properly only when it has a solid basis of indices and criteria characterizing the amount, quality and effectiveness of university performance.

To develop a set of indices for use in planning, one needs adequate and up-to-date statistical information. These items should be accurate enough to be useful both for planning and decision-making at the different levels of university activity and for the control of implementation. Information may be of two types: quantitative and qualitative. Some qualitative aspects of university characteristics are also approximately quantifiable (for example, a group of indices is being used to evaluate the quality of research activities in the VUZ's of the Soviet Union).¹ The construction of quantitative indices, though less difficult than the qualitative ones, needs a lot of care if they are to be meaningful. These indices can help in the balanced expansion of university activities and also serve as a warning signal for any imbalance or maladjustment appearing in the process of university development.

The system of indices characterizing the work of the university can be divided into two groups:

(a) *Basic data* giving information in absolute terms, such as:

- Human resources — numbers of students, teaching and research staff, supporting and administrative personnel;
- Space — classrooms, laboratories, offices, housing, etc.;
- Equipment — for the above;
- Finance — capital and recurrent expenditure.

These basic data outline the dimensions of university activity and provide the basis for more detailed analysis of existing interdependencies, interactions and relations between different activities, or for different types of relative indices characterizing processes.

(b) *Relative indices* and *co-efficients* are indispensable for university planning because they reveal the internal correlation and interaction of different activities.

In a seminar of international experts on university planning held from 7 to 11

1. V. Onushkin (ed.), *Planning the development of universities—I*, Paris, Unesco: IIEP, 1971 (Leningrad case study, p. 61)

July 1969 at the IIEP, the following list of relative indices was considered as being useful for planning purposes in the universities:

- Ratio of acceptances to applications to the university;
- Number of graduates from the university in relation to manpower demand for them;
- Student/teaching staff ratio;
- Rate of drop-out—student wastage;
- Proportion of graduate students in the student body;
- Ratio of available books per student;
- Availability of teaching and research equipment;
- Availability of instructional space;
- Number of hours per week instructional space is fully utilized;
- Availability of other space;
- Unit costs per graduating student;
- Distribution of staff time between teaching, research and other activities;
- Proportion of new courses in the curricula per year;
- Proportion of research that is of high professional calibre.

Subsequently the questionnaire drawn up for the research project enquired from the universities whether they used such indices and whether other indices not included in our list might be useful or were in fact used by them for planning activities. None of the universities which responded suggested any additional item. The analysis of replies shows that a great many universities either do not have a sufficient number of these indices or that they do not use them to their full capacity. All of them should be used, taking into account their interdependence. Such indices are useful to every level of university planning and management. They can, for instance, be used to identify areas where resources are under-utilized and subsequently be used for a better planning of the allocation and utilization of resources in forward planning and thus lead to better informed decision-making.

We shall proceed to examine the implications of each of these indices for planning and management. The analysis may help universities who have not used indices for planning purposes to develop them.

1. Ratio of acceptances to applications

This index consists of two factors—the number of applications received for a particular discipline, showing the preference of students, and the number of candidates accepted for admission. This indicates the relative popularity of a field of study in the university. It is, however, a crude indicator because it ignores the quality of applications received, and generally relates to the major subject in which students are specializing. It may also relate to minor or optional subjects. If the ratio is too high, the decision-maker may consider it, subject to other factors (manpower demand, available teaching resources and space and financial resources) as an indication for expansion of the corresponding field of study. When considered together with an assessment of the quality factor for a particular institution as a whole, this ratio is also an indicator of university prestige.

We found that 50 per cent of our sample have this index adequately available; 21 per cent have it but in an inadequate form for planning purposes; 21 per cent do not have it at all but feel it is desirable for planning; and 5 per cent think it is not necessary. These percentages give an approximate idea of the need for such an index and of the current state of affairs at universities.

2. Number of graduates in relation to manpower demand by field of specialization

This relates to the manpower aspects of university planning and reflects the links between university activities and the economic and social needs of the country. It is necessary for a university which wants to know what is happening to its output and is also useful for estimating the need for new courses in the curriculum. Even if some countries intend to expand a particular level of education under pressure of qualified demand (e.g. undergraduates in the United Kingdom—Robbins Report), this index can serve as a cross-check as to how much the university is meeting the demands of the economy. It might serve as an indicator of the problem of 'educated unemployed' in some developing countries, and also of the shortage of manpower. For each university, construction of this index entails keeping a record of employment of graduates by field of specialization. Many universities have offices for employment of graduates, and even if they do not have figures for national requirements, the number of graduates who are unemployed for one year, say, may serve the purpose. Ideally, of course, each university should be well informed of the needs of the country (as it is in the socialist countries) but this is particularly difficult where there is no centralized overall economic and social planning.

An interesting aspect of this index is that most universities feel it is desirable, but only 16 per cent of the universities in our sample have this information. In the developing countries only a very small number have this information adequately available for planning purposes, which shows the great need for such an index at university level. Those universities in countries where there is no government plan of employment for graduates could keep a record of dates of graduation and type of employment obtained. The time taken to find employment may be an indicator of demand (as in the case study of the Federal University of Bahia). This may help to formulate a better admissions policy and help in the question of 'educated unemployed' which has been identified as a very serious problem in some developing countries.

3. Student/teaching staff ratio

This ratio must be interpreted according to method, type and level of instruction. For a discipline where lectures are sufficient it may be very high, but for one which needs workshop practice it is desirable to have a low value. Some universities use a weighted system, assigning different weights to different disciplines and to different levels of the same discipline. Universities should have specified norms,

based on pedagogical analysis, of student/teacher ratios for all types of instruction and for all disciplines. This helps in analysing the resource impact of different enrolment policies. Class sizes can also be specified in a meaningful way. This index, which is one of the simplest, can play a major role in the overall planning of the university. While 76 per cent of the universities have this information adequately available for planning, 14 per cent have it in an inadequate form and the remainder do not have it at all.

4. Rate of drop-out/student wastage

The rate of drop-out, which indicates to some extent wastage of resources both on the student and the university side, can be measured as the number of students who registered but left before completing a course, although the student who drops out may have acquired knowledge which is not subsequently 'wasted'. Universities, by their own experience, can specify a period, after which any student loss can be considered in the drop-out rate.

The drop-out rate influences the unit cost of producing a graduate, which may be artificially inflated by a high rate. If the rate is too high, measures can be devised to reduce it by identifying the reasons for drop-out. If it is due to difficulties in assimilating a particular course resulting in failure to keep up with the curriculum, this indicates that a closer study of the teaching, learning and assessment in the course in question is needed.

In our sample, nearly 44 per cent of the universities have this index available for planning purposes; 31 per cent have it but in an inadequate form; the remainder think that, though they do not have it, it is a desirable index for planning purposes.

5. Proportion of graduate students in the student body

This is related to the functions and objectives of a university. There has to be some sort of balance between the number of graduate and undergraduate students keeping in view the objectives of the university, whether it emphasizes graduate education and research or undergraduate education. As with all the other indices, this one is related to many of the others, for example, student/staff ratio, availability of equipment, etc. It also influences the teaching/research balance. This information was adequately available in 66 per cent of the universities in our sample. Some universities stated that it was not needed for planning but a further 13 per cent, although they do not have it available, felt it was desirable.

6. Ratio of available books per student

This ratio gives an indication of an instructional resource—in this case, books available for students. For the moment, books are still the most essential medium of instruction. Most of the universities during the last decade have expanded quite rapidly, but expansion in learning resources in many cases has not been taking

place at the same rate as the expansion of students. Along with others, this index will help the decision-maker to check the way in which this resource is growing. In most universities this ratio is not available because there are no prescribed books for courses and again, due to lack of facilities, the number of titles for each item is not available. It will take time for computer facilities to be used for documentation purposes in libraries in many countries. However, some universities are making use of computer facilities for this purpose. There is no denying the fact that this is a useful index for planning development and can be added to by indices of book circulation, etc. Nevertheless, only 40 per cent of the universities have it adequately available for planning purposes. The situation was the same for developed and developing countries represented in our sample.

7. Availability of teaching and research equipment

As well as books, teaching and research equipment is essential for carrying on the activities of the university. Most universities in developing countries suffer from a shortage of teaching and research equipment, and also have difficulties of replacement and renewal. Innovations in methods of teaching and learning sometimes call for the introduction of modern educational equipment, while applied and developmental research needs costly research equipment. Although most of the universities have a lot of such equipment, there is still no suitable way of using data about its amount for planning purposes. For a particular field of study, which needs laboratory or workshop practice, a list of items required can be made. The number of students in each group can be specified according to the availability of facilities in the laboratory or workshop. Lists of items can be prepared for each student-place. Some items may be used jointly, but research equipment, in most cases, is affected to a particular project. Equipment, like computers, may be co-operatively used by many departments.

The responses from universities indicate that only one-third of them have any tool for evaluating the availability of research equipment, although all think there is a need for such an index.

8. Availability of instructional space per student

This information relates to the physical capacity of the universities and helps in the balanced expansion of the university's main activity, i.e. instruction. The method of instruction in each field of study has an impact on instructional space. Lecture, seminar, tutorial rooms, laboratories, workshops, all need different space per student, but each can be specified and used for planning purposes. Developing countries can use this index for any development plan. Rapid growth of student enrolment and particularly the acceptance of a policy of responding to demand for places in some countries has caused a serious problem with regard to instructional space due to lack of resources. Fifty-six per cent of all the universities in our sample have this index available for planning, and all consider it to be of use for planning purposes.

9. Number of hours per week instructional space is fully utilized

This index relates to the resource utilization aspect of university planning. Instructional space is a critical variable for expansion of university activities. Better scheduling of classes can save a lot of this scarce resource and accommodation can be found for a larger number of students. It shows how instructional space is being used, and if the amount of utilization is low, steps can be taken to improve the situation. Neady 39 per cent of our overall sample have this index available for planning purposes; 18 per cent have figures but not in usable form; and 38 per cent do not have these data at all.

10. Availability of other space

Other space includes dormitory and recreational space for students, office and recreational space for administration, teaching staff and supportive personnel. It also includes such areas as corridors, stairs, etc., which are included in the plan of any building. It may also include staff quarters. When planning a university these space requirements are as important as instructional space and can serve a useful purpose for the decision-maker. Forty-six per cent of the universities have them available for planning purposes, 31 per cent have them in an inadequate form, and 20 per cent do not have them at all but think they would be useful.

11. Unit costs per graduating student

Unit costs are based on the capital and recurrent expenditure of the university and may be used as one of the principal tools for budgeting. In order for unit costs to be useful for planning purposes, they should reflect the differences of subject groups, and different levels and methods of instruction. Some weighting systems may express part-time students in full-time equivalents. Correspondence courses should be treated entirely separately.

The 'graduating student' makes the unit cost more meaningful. It takes care of wastage of resources by students who repeat courses or drop out, and the analysis should be based only on students who graduate. We found that 44 per cent of all the universities in our sample have these data available adequately for planning purposes.

12. Distribution of staff time between teaching, research and other activities

Universities have found that this is a very difficult and delicate question, but since the teaching staff are one of the basic university resources, it is necessary to know for planning purposes how their time is utilized. Of the universities responding to the questionnaire 27 per cent have this information available for planning purposes.

13. Proportion of new courses in the curricula per year

The uses of this index are mainly related to the evaluation of content of courses and updating the syllabus. Most universities have units to evaluate the curricula but mainly at the departmental level. An index such as this could provide the decision-maker of the university with a check on these activities. It also informs the teachers about new developments in respective fields and consequently contributes to improving the quality of teaching. Students may find their education more meaningful if the curriculum is continually adjusted to the changing social, cultural and economic needs of society. Forty-one per cent of the universities have this index adequately available for planning purposes, 10 per cent do not feel that it is useful and the remainder do not use it although they think it desirable.

14. Proportion of research that is of high professional calibre

This can be useful for evaluating the work of members of the university staff and also for evaluating the performance of the university at the national level. In the absence of such an index, research money is sometimes allocated irrationally, yielding less benefit than it might otherwise have done.

Very few universities in our sample think that this index is not needed for planning purposes, but only 23 per cent have it available in an adequate form.

This index can be supplemented by evaluation of economic and accompanying scientific, educational and social effects of different types of research work.

All these indices, either taken separately or in different combinations, can be used as instruments for analysis of university performance and for planning development. The degree of detail or generalization of information depends on the level of decision-making and on the concrete problems to be dealt with, but one can say that these fourteen indices can provide a basis for planning at different levels of the university, starting from the departments where information will be the most detailed to the highest level where it will be used in an integrated form.

To achieve well-founded planning and decision-making, it is necessary to take into full consideration all elements connected with the decision, and also the future consequences, both immediate and long-term. This would obviously involve not only one particular field but related fields.

As the university is an organization in which all parts and functions are inter-related, it is very important in the process of planning not only to deal with particular functions of the university or with particular problems arising in the process of its development, but also to take into account other functions and variables.

It must be remembered that each index is dependent on all or some of the other indices, and no one taken in isolation can be usefully employed for forward planning. The student-teacher ratio, for example, must be used in conjunction with the proportion of new courses in the curricula, and the availability of instructional space. It will equally need to be considered in relation to unit costs and

availability of teaching and research equipment. In the same way, inter-relationships for each of the other indices can be worked out.

Only a combination of different quantitative indices can give a clear idea about the quality of work. For example, in order to judge the quality of the teaching-learning process at the university, one cannot use only one quantitative criterion—the implementation of the curricula. To gain some idea about quality, some very important variables are the qualifications of the teaching staff, the material support given to the teaching-learning process, the combination of different types of teaching work, etc. And even though high qualifications of the teaching staff are important, they are not a sufficient index and must be supported by the number of contact hours with students, which shows their real contribution to teaching.

A comprehensive approach to evaluation and planning ensures not only well-founded planning and managerial decisions but also enables one to foresee the possible consequences of decisions made in one field on other aspects of university activity. Universities should try to formulate a kind of check-list of points to be considered when making decisions on their basic activities.

VII. University planning mechanisms

As one can see from the information received from different universities in all parts of the world, university planning has become a kind of fashion recently but very often it is interpreted only as the creation of a planning office within the university administration. This very narrow interpretation of planning results in low efficiency and the activity of the planning office hardly affects the management of the university. Only in those cases where planning activity is considered in broad terms as a new style of management affecting all components can it give good results and contribute to balanced university development.

Planning cannot just be tacked on to an old university structure or to the traditional processes of decision-making, since it needs a clear-cut analysis of the structure of the university from the highest to the lowest levels of the hierarchy, together with clear definitions and distinctions of the aims and functions of the different units and a clear idea of the hierarchical correlation and horizontal and vertical interactions.

Planning activity should be the concern of all the university units and of all groups at different levels. It should consist not only of preparing documents but mainly of implementing and controlling the process. It is possible to distinguish even at the institutional level between *strategical planning* or long-term forecasting of university development, which can be done by special research groups headed by the rector, and *technical planning* bodies involved in medium-term and short-term planning activities based on the conclusions of the former group. But in any event, the development of planning mechanisms should take into consideration the peculiarities and specific characteristics of a given university, and it is difficult to make a concrete definition of its structure and units without knowing these details. Nevertheless, one must be fully aware of the technical aspects of university planning and special training should be given at the national or regional levels to planning and managerial personnel.

Another aspect which can be seen from the case studies and which is perhaps even more important than just the development of planning mechanisms in technical terms is *the creation of a climate of innovation and co-operation inside the university*. This is obviously not a problem which can be overcome by the introduction of sophisticated planning mechanisms and techniques. The creation of such a spirit

of co-operation which will neutralize resistance to planning inside the university in order that its activities may meet the progressive social and economic needs of the country, will involve in some cases a limitation of university autonomy.

VIII. Some recommendations on future research in the field of university planning

Study of existing situations and experience of planning in the universities shows that most of them consider it to be an important instrument for ensuring development in accordance with changing social and economic demand. Some experience has already been obtained and analysed but many problems still exist, the solution to which would greatly contribute to the further improvement of university planning and management. The most important of them are:

- Methodology of forecasting and planning the development of higher education in accordance with the socio-economic demands of the country;
- Forecasting and planning access to higher education and methods of evaluation of demand for graduates;
- Planning of teaching and research staff formation for higher educational institutions;
- Methods of evaluation and ways to improve the effectiveness of different forms of higher education, and optimization of their combination;
- Optimization of size and organizational structure of the university;
- Methods of working out norms for basic university activities (teaching-learning process, research, and so on);
- Forecasting, planning, organization and evaluation of efficiency of the teaching-learning process;
- Forecasting, planning, organization and effectiveness of research work;
- Planning, organization and effectiveness of the work of academic staff;
- Planning, organization and effectiveness of the work of students
- Planning, organization and methods of evaluation of effective use of material and technical resources;
- Methods of analysis and evaluation of effectiveness of expenditure;
- System of indices and criteria for university planning;
- Ways and means of improving the university information system;
- Methods of comprehensive planning for the development of universities.

It cannot be expected that these problems will be solved at once or that solutions can be found for all situations and for all time, but continuation of the work in these directions and utilization of results so far obtained will ensure improvement and innovation in university management.

Summary report of the seminar



I. Introduction

The seminar, which was organized to review the final results of the project 'Planning the Development of Universities', took place at the International Institute for Educational Planning from 3 to 7 July 1972, exactly three years after the discussions which had been held on the proposed plan, working methods and organization of the project. Thirty participants, all of them engaged in university planning activities, from twenty countries—each continent was represented—met to discuss the documents which were the results of the past three years' work. Many of them had themselves taken an active part in the project, either by completing a questionnaire or by writing a case study.

Mr Poignant, Director of the IIEP, opened the seminar by briefly describing the history of the project and the documents which had been produced (final report, analysis of the questionnaire and twenty-one case studies on five areas of university planning). The agenda was ambitious but the seminar which inaugurated the research had stressed the interrelationship and interdependence of all aspects of university planning and the fact that they could not be viewed properly in isolation.

Professor Onushkin, head of the project, emphasized that the main object of the research had been to gather together and analyse experience in planning from which conclusions could be drawn to help other universities to begin or to improve their planning systems. He went on to explain how the work had been carried out and listed the basic general conclusions which had been drawn from the analysis of the questionnaire and the case studies as well as the major problems on which further work remains to be done (these can be found in the Final Report).

II. Discussion of the analysis of the questionnaire

A general discussion on the analysis of the questionnaire¹ was then opened and the consensus of opinion was that this document constituted a remarkable collection of data—nothing comparable having previously been attempted. The results supported factually for the first time various assumptions held about university planning and management. As such, it would be an extremely useful reference document for some years to come. Participants commented upon the analysis from their own point of view—one delegate felt that the classification 'Latin and Central America' was too general since there are many differences between the universities in the countries of this continent, which is usually divided into four parts, and also that political factors should have been given more consideration. From the Yugoslavian point of view, information on part-time students was as important as that for full-time students and they also needed to know about the secondary education of students and what happens to graduates after they have left the university. Some concern was expressed by one of the participants as to the conclusions which could be drawn from the growth rates since good development might not necessarily be balanced. Professor Onushkin replied that he was well aware that the growth rates alone do not give a full picture but they do give an indication of the dynamics of the situation. In combination with an analysis of the situation prevailing at the starting-point and the types and rates of innovation, they can be used as an important method of analysing university development.

On the whole, therefore, criticism was levelled at the limitations of the analysis from the point of view of individual countries, rather than at the analysis and conclusions themselves. However, at the same time, it was felt generally that one of the benefits of the work done by the project was that it dealt with a very diverse sample and showed the full extent of the complexity of universities. A North American participant hoped that, since all situations are different and society is changing so fast, there would be no attempt to build a model from the information gathered during the project, but rather to set out guidelines and exercises to train university planners. This was reinforced by other similar suggestions

1. V. Onushkin, *Planning the development of universities—II*, Paris, Unesco: IIEP, 1973

—for example, it was suggested that the classification by planning systems might be developed into a profile which would enable institutions in all parts of the world to judge the extent and efficiency of their own planning activities. Two other participants suggested that check-lists of indicators to serve as guidelines for university management would be a useful result of the research. The Guidelines drawn up for the case studies might serve as a basis for these.

The conclusions reached by the analysis were each commented upon by several members, as in the following sections.

1. Pace of development of universities

The rapid rate of university development, both in the past and for the future, was considered as being inevitable for a variety of reasons—the main ones being scientific and technological change, expansion of knowledge and social demand. The latter was held to be a right which cannot be denied and was later taken up more fully in the discussions of the case studies on planning access to the university.

A participant pointed out that in this situation old problems are cumulated by new ones and it was necessary to find a reliable method for forecasting future changes. In this respect, there is a research project under way in Czechoslovakia which has made an inventory of the results achieved in this field in the last decade.

2. Quantitative and qualitative aspects of university activity

The participants were in general agreement with the findings of the questionnaire that both qualitative and quantitative measurements were necessary in university planning, but felt that while the quantitative measurements were fairly easy to work out, nobody has yet been able to develop satisfactory techniques for measuring quality and that this should be the subject of further research. An example of the difficulties encountered was put forward by the Indian participant who pointed out that the quality of graduates differed a great deal and asked how it was possible to take this into account when planning.

3. Widening gap between developing and developed countries in university performance

The participants called for a greater international effort in this direction in order to improve the situation. Some of those from developing countries spoke of their need for experienced people in teaching and administration and of the fact that the graduates sent abroad for further studies usually returned with little experience of research and of planning curricula, etc. The Unesco delegate commented that the functions of universities in developing countries are much more varied and this should be borne in mind and also that Unesco provides the assistance of experts on a large scale but this depends on member states making specific requests.

4. The university and socio-economic needs

The Australian participant made the point that relating output of graduates to national socio-economic demands is not so easy in a country with an unplanned economy, but it is a fact that the tendency in Western Europe and North America, whereby student choice is the major influence, has led to unemployment and under-employment of graduates. However, trying to relate output of graduates to manpower demand means assuming that one can predict development for the next twenty years and it has been said that by the year 2000 something like 85 per cent of the present professions will no longer exist. In this case it would seem that the major concern of the universities should be continuous education since this would offer the only way to meet changing socio-economic needs. In addition, there is the question of the under-privileged who must be catered for by an intensive effort on continuous education and the use of modern media.

Participants from widely differing parts of the world agreed with him in some respects. The Malayan delegate did not think that universities in South East Asia could base their planning on manpower forecasts as they exist now; on the contrary, it had been found that the supply of highly qualified manpower actually created demand.

In Spain, there is as yet insufficient information to plan adequately, for instance, economists are trained but the demand and kind of training necessary has not been specified. It is known that economists are needed by both public and private enterprises, for which different kinds of training are required, but the students are not keen to work in private enterprise and prefer to study economics in relation to sociology. The professors also have their own ideas which need to be brought into line with the needs of private enterprise. It would therefore seem that the aims of the university and the content of the teaching work are not for the university alone to decide—this is a problem for centralized planning.

The service functions of the university were thought to be of the greatest importance if the institution is to meet socio-economic needs: these were listed as, firstly, putting research results at the disposal of agriculture and industry, which helps to bridge the gap between the university and the environment; secondly, the university should be open to people of all ages, even those who do not meet academic requirements, and thirdly, organization of re-training of graduates to keep them up to date with new developments. An example of the latter was the annual meeting of the Medical Assembly in Beirut where doctors from all over the Middle East learn of new developments in particular fields.

This view was endorsed by an Asian participant who was nevertheless concerned at the mounting cost and resources which will be needed—recurrent education and the demands of industry and the community should be met but not at the expense of depriving normal university students of the teaching of the most highly qualified personnel. He pointed out that the wall which used to exist between university education and training is disappearing—big industrial organizations are taking on work which used to be done by universities and this is a factor which must be taken into account in educational planning.

5. Importance of higher educational planning for university development

While many felt that a comprehensive approach involving both central and university planning was desirable, participants expressed their concern that the university be able to participate in the central planning and be able to influence it according to their own experience and ability. Central planning should benefit from the university as well as the university benefit from it. It was seen that planning of a university system becomes more complex and difficult where it is not integrated into other socio-economic spheres.

The question of central planning inevitably led to a discussion on university autonomy. One view was that autonomy is not a right—the university must earn it by contributing to society and should participate in planning and make its own points clear. Perhaps what is needed is more tolerance on the governmental side and more awareness on the university side. In any event, the concept of autonomy needs reinterpreting. A study might be made as to how freedom of teaching and research and planning can be complementary. The suggestion was made that it would be better to speak of the role and responsibility of the university within society rather than to speak about its autonomy.

The Director of the IIEP remarked that as soon as the word 'planning' is mentioned, universities begin to worry about their autonomy. A university is at the service of society and must be prepared to give an account of itself. He recalled to mind the way in which the universities in France veered from a principle of total autonomy set out in the Condorcet report in 1792 to a university at the service of the community when this report was rejected by the Convention in 1793. The university will never be completely autonomous but the individual professor because of his right to carry out scientific research must be free and it is up to the political powers to see that he has the freedom to work and think.

At this point, the system of university planning in the USSR was briefly described to the seminar. It is seen as the task of the professors themselves and is an activity which cannot come to fruition without their participation. The university should be headed not by an administrator but by a man of learning.

The basic content of planning begins with common human factors and each of us constructs models to achieve our aims; we look for resources and use our common sense—university planning is conducted in much the same way. In the USSR, industrial experience in planning is almost always made use of but a special kind of planning is needed in universities for they produce very specific values. It is therefore less directive than that for industry and a teacher may be more flexible. However, there is a limit to this beyond which it may be harmful and planning serves to help those who are not too capable of planning their own activities.

There are two sub-divisions of planning the activities of teachers: firstly, the teaching activity which is originally defined by the teacher himself who will submit his demands at faculty level where agreement will be reached with his fellow staff. Secondly, there is the research activity for which there can be no strict planning of results nor can a time-limit be set. University professors usually choose to work

on fundamental problems which will also help them to improve their teaching. If a professor is not satisfied with the finance allocated by the university, he may carry out research under industrial contracts.

In brief, planning takes place at the university level, the Ministry simply draws up the balance sheet and—most important—facilitates exchanges among universities.

6. Necessity to develop an information system

An adequate information system was considered to be vital for educational planning, whether at institutional, national or international level, but the seminar was reminded of the danger that the more information which is circulated, the more there is a risk of clogging up the system. Universities should take a good look at the information they are circulating and regularly sift it.

A participant raised the question of the need for a central clearing-house for information at the international level in order to create a situation in which concrete collaboration among institutions throughout the world can flourish. The Unesco delegate informed the seminar that many information clearing-houses do in fact exist in the field of universities and that Unesco would open one for European universities in September 1972. An example of international co-operation was the study on a mathematical model of the development of human resources for research and development which was being carried out by a Czechoslovakian university and Unesco.

7. Personnel for planning in the universities

The lack of proper training for university planners and administrators was acknowledged and the seminar asked itself how a training programme could be begun. It was agreed that it is the professors who should be responsible for taking the initiative in planning but very few have been trained for this and it was not easy to find one who could take an overall view of the university. In this connexion it was also mentioned that, with the much greater emphasis on participation of students, faculty members, non-academic staff and representatives of the community in the university decision-making processes, it is necessary that the limits of the participation and the responsibilities should be defined as well as orientation given. These people will have to be persuaded to come forward voluntarily and it will inevitably be a rather slow process.

8. University experience in planning and management

This subject was taken up mainly by the delegates from international organizations engaged in research on educational planning. The delegate from the Organisation for Economic Co-operation and Development (OECD) raised three questions which stemmed from the research:

(a) Why do some plans succeed and others not? It is necessary to pay attention

not only to planning methods as they are at present but also to problems of innovation. A plan may dispose of all the physical and material resources necessary and yet fail because certain parameters—for instance, psychological factors—have not been taken into account. In France in 1968 it was postulated that universities would henceforth be multidisciplinary with consequent effects on cost and staffing but it was difficult to attain this because of resistance from both staff and students.

- (b) Have we not reached a stage where we can ask ourselves what we should plan and not plan; are there not situations where it is better not to plan? We should try to identify them.
- (c) Besides the two large functions of teaching and research which may be said to cover all other functions, it might be better from an operational point of view to single out the new university functions, such as permanent education, community service, etc.

The Unesco delegate took up the second point. Many universities do not like planning and the reason for this is that their need for it is new. It is only relatively recently that they have felt obliged to plan—we are now going through a honeymoon period of planning and there is a danger that it may sometimes intrude. We must know what is capable of being planned and what is not in university life—indeed it is known that over-centralized planning does not give perfect results. Planning must create the circumstances under which certain positive trends can emerge almost automatically.

He noted that there are fields which are not covered in the project which could be planned for—that of the material rewards of university teachers and use of university finance: e.g. to what degree must the university account for its spending?

The Director of the Institute commented that looking at the analysis of the questionnaire one could see that planning did not intrude very far. Everyone has called for freedom of science but all the planner is asking for is a more rational development of universities. Planning is nothing more nor less than insurance for the future.

With this, the general discussion on the results of the analysis was closed and the seminar then considered in turn the five areas of university planning which were the subject of the case studies. Summaries of the discussions are set out in the following pages as well as the recommendations formulated on each area by the relevant Working Group. Summaries of the case studies themselves can also be found in part III of this publication.

III. Planning access to the university and the employment of graduates

Professor Onushkin introduced this key subject by noting that access controls the essential quantitative and qualitative characteristics of the university. It may be planned in relation to the demands of the economy and the social demands of the community. But inputs are only one side to this problem—the other is that graduates wish to be able to work in the fields for which they have been educated and to be properly remunerated. Thus, it is evident that access and the employment of graduates have to be looked at together. However, there are some, including heads of universities, who deny the need to plan in relation to future employment and consider this to be beyond the competence of the university.

The summaries of the case studies written on this subject bring out three important factors in regard to access:

- the demand for higher education;
- the need for qualified manpower;
- the capacity of universities (staff, facilities, finance).

Only one of the case studies takes all three into account. As a rule, where there is no central planning, universities take note of social demand and the institution's resources, but there is no direct link between admissions and future employment prospects. Experience in developing countries shows that this is liable to lead to misemployment of highly qualified people, to a brain drain and to a badly oriented curriculum. These documents also reveal a great range of situations, from total lack of methods to fairly complex machinery, such as follow-up studies, studies of the labour market and special offices to process information. In some instances, access is directly dependent on the market demand for graduates.

Looking at admission procedures, one finds three main systems:

- (a) where there is right of entry for all those with the appropriate secondary-education certificates;
- (b) where there is a selection or filter process between secondary and higher education: here some candidates are rejected;
- (c) a mixed system, where some institutions and/or faculties have selection and others have an open system.

The essential problems on which the seminar was invited to focus its discussions were:

- The internal and external factors which determine access;
- The role of manpower demand planning in the distribution of students among the different fields of study;
- Professional orientation at secondary school and university;
- The organization and procedures for admission and for providing graduates with employment.

Before the general discussion opened, the Director of the IIEP noted that more than 70 per cent of the universities in the analysis have controlled entry and thus have the power to plan to some extent. Also, even when there is open access there are certain methods—for example, in France there is a law which says that universities must organize the orientation of students in relation to employment needs, and though the universities have open admission the 'grandes écoles' do not. It can be seen that each of the six case studies reveals different methods of organizing entry and selection and each of them has great difficulty in introducing a policy on access. How do universities decide on the number of students to be admitted to study in the different fields and what are the criteria? Are they applicable to both developing and developed countries?

1. The internal and external factors which determine access

It was apparent from the discussion that criteria are not equally applicable but depend to a great extent on the conditions existing within the country: for some, coping with social demand was the most critical, for others, various imbalances, such as that of science versus arts subjects, were the most important. All were agreed, however, on the need to consider both the students' and society's point of view.

For the Middle Eastern countries the problem was one of having to accept too many students in relation to the university's resources. In Syria there is no lack of employment in the field of health but the university cannot train more than the present numbers, whereas a great many students were taken into the Faculty of Arts, not because the graduate could easily find employment, but because the facilities could support them and this was the only way to ease social pressure. A compromise has had to be made with strictly limited numbers in science and medicine and a rather open-door policy in Arts, Law and Commerce. By doing this, they can take 30 per cent of applicants with secondary-school certificates, but it was felt that all students with such certificates have a right to university education. A second and third university have been opened but even so a good number of young people have been left outside. The problem could be approached from two angles—how to take more into the universities and, at the same time, decrease the number applying. A system of professional orientation at secondary level to channel approximately 50 per cent of students into other forms of education and training would greatly reduce the pressure and enable the universities to plan access more satisfactorily and open up new fields of specialization. Thus, planning university access could not be considered in isolation from secondary education.

Some doubts were expressed that all people who complete secondary education

automatically have the right to continue at the third level. This was thought to be a relic of the days when the function of secondary education was to prepare students for higher education. Some systems of secondary education have diversified and are more oriented towards the demands of the labour market so that not all students were fitted to follow university courses. It was felt that in the Middle East education is of the intellectual kind which does not provide enough variety or choice as regards future pursuits, with the result that everyone wants to go to university and then on to a government job. More diversification of secondary education was necessary to fit the child's ability to the labour market before he entertains unrealistic ambitions about the university.

Increasing demand was also seen as the main problem for Japan. Twenty-three per cent of an age group at present go on to university and applications are still increasing. There are many universities in Japan but there is keen competition to enter the best ones and this has distorted secondary education which in many cases has become a kind of preparatory school.

Here the seminar's attention was drawn to the fact that access to post-secondary education and access to the university are not one and the same thing. Indeed some problems of increasing demand for post-secondary education may be solved by creating new institutions which are not universities and which are less costly. The university is the most difficult to create and to bring to maturity and it is also the most expensive. Those countries which have a large proportion of students in post-secondary education should look at the alternatives. The example was given of the two-year colleges in the USA to which an increasingly large proportion of students go. Since we have spent so long convincing the youth of the world that education is the solution to all their problems, we cannot now suggest that they have had enough and, in any case, this has become a matter of social policy in most countries. The student has a right to some form of further education but this does not necessarily mean the university. Access to the university should remain selective and limited but access to post-secondary education should be unlimited and we should not exclude the solution to the problem by our definition of it.

The taxpayer's view was put forward—he could not be told that his child could not go on to university because there will not be a job for him when he finishes his degree. Planning should begin with counselling in the secondary school and students informed that there is something *other* than university education available at the third level.

However, one developing country had found that vocational schools were more expensive and in any case these institutions also sought university status.

Much discussion centred on the need to redress imbalances within the structure of society and imbalances in the supply of qualified manpower by university admissions policies. This seemed to present greater problems on the whole for the developing countries than for the developed. For instance, in Malaysia, passage through the university increases the income of a peasant by ten times. Entry is a serious privilege and the government has been aware of the need to restructure society by giving better opportunities to the children of peasants. Within this

context, the Malayan universities have imbalances of four kinds (a full description of these can be found in the summary of the case study) which need to be rectified as a matter of admissions policy:

- (a) *Academic imbalance* between the arts and sciences. Although the arts stream has been the one to expand, the government actually requires a higher ratio of science students. This is a problem which can be rectified only at secondary education level.
- (b) *Rural/Urban imbalance*—traditionally children from schools in large towns have been greatly favoured educationally. It had been found, for example, that twenty-two schools out of 700 dominated two-thirds of the admissions to medicine. It will take twenty years to make the schools in the smaller towns as good as those in the large ones but the Ministry of Education has made its plans and engaged advisers.
- (c) *Language imbalance*. The policy is now to teach as far as possible in the native language since people learn better if they are taught in their mother tongue. It will take eight to ten years to effect this changeover and by 1982 entrants to the university will have lectures in Malay. At the same time it will be necessary to ensure that undergraduates are able to make use of scientific journals in English and a language centre has been established which this year taught more than 1,000 students to read and use English.
- (d) *Ethnic imbalance*. Efforts were made to increase the proportion of Malays at the university and in 1972 they composed 47 per cent of the entry which is very close to the 51 per cent which they form in society.

Academic imbalances were encountered by other universities for different reasons—in Japan the problem is that 80 per cent of students attend private universities, which have grave financial difficulties in spite of government help. This has resulted in their developing the less expensive fields of study—50 per cent of students are in the sciences in public universities as against 30 per cent in the private universities—and has created an imbalance in output of graduates. In the Sudan, the more able students choose to go into the sciences and the less able into the arts, which has produced an imbalance in the quality of graduates from the two spheres. Employment policies have a tremendous impact on the academic balance in India, since the government is the main employer and is expected to become an even bigger employer in the future. Tests for employment in the civil service are based on the humanities and social sciences and, due to this particular factor and also because colleges of engineering and science control their admissions, the arts faculties are used as an escape gate to satisfy social demand.

The suggestion was then put forward that a systems approach to the planning of access might be adopted. Three factors influence access—the first is social demand which covers all social factors affecting higher education. The second is manpower demand and the third is rate of return, whether public or private. Each constitutes an approach to planning access. We should define the variables of the university system and use them to weight these three approaches; the weight given to each would depend on the time, the place and the system of education in

question. For example, in the Soviet Union higher education is planned using the manpower approach principally, but it also caters for social demand by providing correspondence courses and other methods of acquiring university qualifications.

2. Role of manpower demand planning in the distribution of students among the different fields of study

Here even greater differences of opinion and experience were found, ranging from situations where educational planning is based primarily on forecasts of manpower demands to situations where such forecasts are not available or thought not to be a very reliable tool. Those countries with long experience of such planning found it to be indispensable. In the USSR five-year and annual plans, which the educational institutions themselves have helped to formulate, are used to establish the numbers of students to be prepared in the various fields. The present technological revolution with its demand for specialists in many different fields to solve specific problems has made this even more necessary.

In the USSR planning access to the university is considered as one of the basic elements in the socio-economic planning of the whole country.

- It provides the needed manpower to take key positions in culture, economy, health, etc;
- ensures the most efficient use of teaching staff;
- ensures better training;
- defines expenditures more exactly and ensures better use of resources, e.g. funds can be given to those fields where they are most urgently required;
- avoids training of too many specialists of one type;
- guarantees that everyone who graduates from university will have work in his own field.

The formulation of plans is carried out in two parts:

- (i) Calculation of needs for qualified staff in particular fields both in the country as a whole and in each republic for five years ahead. Calculations are based on figures supplied by enterprises, ministries and all those employing staff, and, in order that they should be accurate, a common methodology is used.
- (ii) Profiles are drawn up of the particular specialists needed.

The entry system is selective and on the basis of examinations. Those people who have already started work are covered by a system of preparatory courses in higher educational establishments and workers are given grants equivalent to those given to first-year undergraduates.

The Director of the Institute brought the seminar's attention to the 1968 IIEP report on Educational Planning in the USSR. The problem is to work out precise correlations between professional qualifications and individual jobs and in the USSR this is fairly exactly defined through a nomenclature which is kept under constant revision. One might say that this is not possible in all countries but certain correlations do exist between types of jobs and professions; in France, using the USSR method, a rather rough interpretation has been worked out and has in fact avoided catastrophic errors. Students do ask to be orientated—they

do not wish to be unemployed and assistance must be given to help them in their choice. Manpower forecasting plus common sense can lay down the main guidelines.

However, it was pointed out that even in a country (Poland) with planning at all levels where manpower needs are taken into account, social demand pushes up the number of students: this year 4,000 new students were planned for the University of Gdansk, but 4,300 were accepted in practice. This problem is somewhat aggravated by the fact that in Poland there are moves to reform the whole educational system by 1980. This has been worked out by a group of twenty-four experts and their report would be published in 1973. The first move has been to raise teachers' salaries; the university will have a new role, promote interdisciplinary studies, etc. As regards the training of specialists, for those undergraduates who have previously been employed or know the special jobs they wish to do, there is a system of scholarships given by various enterprises and the numbers are growing in importance every year.

Although there seemed to be agreement in the seminar that the general principle of planning access on the basis of the absorption capacity of the economy was a good one, doubts were expressed as to the reliability of ten- to fifteen-year forecasts, even if they were confined to the main types. One of the major difficulties was to establish a correlation between training and the actual job to be done. In the developing countries this was seen to be a particular problem—they were working in a dynamic situation and needed to take decisions now. In any event a decision involving whether to train thirty or forty dentists in a country where a peasant has to travel 100 kms. even to see a dentist would not seem to require any sophisticated techniques. The Malayan participant felt that so long as the quality of the graduate is maintained, in an expanding economy they can create their own opportunities. In some Asian countries, the policy of too sudden an expansion of numbers led to a drop in standards and consequently graduate misemployment. However, it was subsequently pointed out that Malaya is not as yet very much developed and is a relatively rich country—this, plus the low entry rate to the university, has spared it serious problems with regard to graduate employment. But this is not the general situation since other developing countries with three or four times the graduate numbers have serious difficulties and in some years Malaya might have its problems too.

The seminar asked itself what could be done in situations where manpower planning is not adequate. One suggestion was that accent should be placed on permanent education which would only be feasible if it implied the limitation of the number of years spent in the university before entering professional life. This would allow universities to adapt to manpower needs when forecasts either go wrong or do not outline needs with sufficient detail. It was observed that in industrialized societies an increase in substitution of professional staff was taking place and it would now seem necessary to offer forms of education which lead to more possibilities of substitution.

Another participant pointed out that public higher education can be looked at either as a consumer good or as a factor of production and, whichever way

you looked at it, would profoundly affect the way it was planned. Today in the USA, where there are both public and private institutions, it is practically a consumer good. The student is free to study any subject he wishes and this has led to some curious instances (a Ph. D. Lit. who became a cabinet-maker) of mis-allocation of resources derived from the taxpayer. In his opinion, these might be rectified in a capitalist economy by:

- (a) persuasion and by orientation—telling the student that he has little hope of obtaining employment in particular fields;
- (b) pricing courses in relation to job expectations (the lower the expectation the higher the proportion of the cost of the course which will be passed on to the student).

One of the comments on the proposed price system was that there are many kinds of graduates for whom there is a very limited market but who are nevertheless urgently needed by society, so there was a danger that prices might be too high.

The problems of university planning in countries with capitalist economies and the question of possible overproduction of graduates were further discussed. It was felt to be crucial to ensure that key manpower is trained, but there is growing concern as to why the government should continue to bear the burden of producing trained people for the private sector. Why not pass this cost on to industry? At the same time, the right of individuals to pay for the education they want must be preserved. In such countries, government agencies usually carry out manpower surveys every few years to help the ministry of education to arrange for expansion in directions where it is known that future demand will be high, but these directives are not always followed.

For instance, in Japan expansion is not always based on manpower demands. However, they were not thinking in terms of 'overproduction' from the universities but that some graduates will go into posts which were formerly filled by non-graduates. This viewpoint was shared by a French participant who said that in his country there was an overall imbalance, in that the number of graduates has increased while the number of jobs which require graduates—or which graduates feel they deserve—has not. They more or less had a graduate society where a degree does not count that much any more and are moving towards a society where the majority will possess Masters' degrees. The question was also put to the seminar as to whether it is really very much worse to have unemployed graduates than to have unemployed labourers. The notion of 'overproduction' is very relative. Japan is able to absorb twice as many graduates per age group as the European countries, though the *per capita* income is lower and this underlines the importance of the capacity of absorption of the economy. One speaker referred to the theory that the economy should be adapted to education rather than education to the economy, and it seemed that the influences of the one upon the other should in fact be mutual. There should be flexibility in the absorption capacity of the economy together with flexibility in training. It was then pointed out that, at the moment, absorption flexibility tends to mean re-training of graduates, which shows that the economy cannot be adapted to education. Another comment on this was that when people speak of adapting the economy to education, in fact

they are questioning the whole system and really wish to change the whole social fabric.

At this point, an Indian participant put the views of a developing country where, though there was a very low *per capita* income, yet the people have great expectations aroused by higher education. He emphasized that the problem was far more complex than just relating admissions policies to job opportunities and spoke particularly of social factors—the needs of people with restricted opportunities (some racial groups, rural populations, women) who had low qualifications. This view was supported by other participants who felt that the right to education was emerging more and more as a social need to be satisfied independently of the laws of the market.

3. Professional orientation at secondary school and university

It was the view of many of the participants that the need for professional orientation was more acute at secondary school level. Some of the conclusions of the Conference of Ministers of Education of European countries in Vienna in 1967 on Access to Higher Education were brought to the attention of the seminar as being relevant to this question. Among them were:

- (a) the possibility that planning secondary education should take priority over higher education, for it is at school that the different orientation of pupils begins and where the difference in their calibre first emerges;
- (b) At this stage it would be important to encourage many pupils to go to vocationally-biased schools which are not exclusively oriented towards universities, and this would help to control the number of applicants to universities;
- (c) the reform of secondary education might include the creation of standardized certificates for entry to various kinds of institutions of higher education and various professions;
- (d) the essential is, however, high-quality secondary school education for *all* and orientation through the whole span of the education system. This will only come about if the structure of studies is responsive to social needs and is constantly evaluated in relation to subsequent employment opportunities.

Changes in the aims of some universities over the last few years were seen to be connected with this problem—it is no longer a matter of transfer of knowledge, more and more universities will have to offer pre-professional training to their students. In this event, the criteria of selection will have to be modified and more use made of aptitude and motivation tests.

4. Organization and procedures for admission and for providing graduates with employment

This subject was not discussed very fully by the seminar since a great deal of information on organization and procedures for admission is given in the case studies, including the use of computers, criteria for selection, etc.

It can also be seen from the case studies that, generally, little has so far been

done by the universities in the way of organized procedures for providing employment. The experience of appointments offices in some universities was considered to be fairly successful and the University of Malaya was setting up such an office at the request of the students. It was felt that it would perform an important role in feedback and assist the university in its long-term planning.

The Director of the IIEP emphasized at this point the need for a national system of decision-making: access to university cannot be planned without a minimum of national development policy.

Summary of the Report of the Working Group on "Planning access to the university and employment of graduates"

This area of university planning proved to hold the most interest for the majority of the participants. A report was submitted to the concluding session of the seminar, which has been summarized as follows:

1. The most important aspects

The Working Group agreed that access to the university and employment of graduates were two of the most important problems in the development of university activities. Planning of access raises not only questions as to how many students should be admitted, their distribution amongst the different fields, the procedures to be used for this and for orientation, but also questions relating to the overall socio-economic conditions of the particular society in which the university functions, such as existing human and financial resources, the different types of post-secondary education and the main objectives of the university. These important issues have a vital bearing on planning access and demonstrate that planning the employment of graduates must play a basic role in planning admission of students to the university. In addition, such planning must be interlinked with other university activities, such as planning of further education for those already in employment, planning of a system of oriented pre-university education, all of which must cater for the talented as well as for the underprivileged.

The Group, from its experience of the difficulties of university planning in different countries, felt that the problems encountered were due not only to lack of finance and facilities but also to lack of an effective information system, manpower planning and overall planning of the whole system of education.

2. Suggestions and recommendations

It was agreed that those indices for university planning listed in the Final Report of the research project are useful for planning access but the Group also suggested that: (a) the ratio of accepted applicants to the total number of persons in par-

ticular age groups; and (b) the proportion of accepted applicants from different socio-economic groups, might also be used.

It was felt that more efforts should be made to facilitate exchange of experience in this field and to carry out research on the following two aspects:

- Conditions of employment (or unemployment) of graduates in particular regions of the world;
- Studies on 'key' manpower planning to meet the essential demands of national development.

Attention should thus be concentrated in the future on the development of different forms of post-secondary education, on orientation of pre-university education, on manpower planning, on better systems of information and quantitative evaluation of university development, on better methods of control of expenditure and on improved international co-operation between universities.

The Group recognized the need and importance of training and studies in the field of educational planning and management for university officials (both academic and non-academic) and recommended that such facilities be provided in academic administrative staff colleges at national/regional/international levels.

3. Comment

The Director of the IIEP felt that the Working Group might have expressed more forcefully the idea that university access should be guided by a knowledge of the labour market. The present situation is that on the one hand there are countries which have a totally planned economy where the universities are integrated into overall planning and on the other there are universities who 'do their best' without really knowing what manpower requirements are. The problem is what can be done technically to help the latter in their search for a better correlation between manpower needs and access. They may, for example, extrapolate on past figures and see what has happened to their graduates. This is not the best tool but nonetheless it is a guide for the future and the case study from the University of Bahia shows something of what the university can do alone.

However, one dominating idea emerges—the conception of the university as a centre of culture and training. Nowadays, the universities are giving and must give more and more pre-professional training.

It was quite true that further research on planning access needs to be done, but one must ensure that the universities will make use of it.

The chairman of the Group replied that with more time at their disposal they would have amplified the point about the importance of the labour needs but it was evident that in many parts of the world, it is not easy to identify manpower requirements and at the same time it was equally evident that universities do not always take note of the information available. It might therefore be easier to try to bring the university into a closer relationship with essential requirements rather than to try to identify the entire range of labour demands.

Professor Onushkin summed up by saying that access to the university and employment of graduates is one of the most complex areas since internal/external

problems are linked. He felt that the general recommendation of the Group that planning access should be linked to employment possibilities was satisfactory, and agreed with the Chairman that there is no one solution which would fit all universities since the kinds of connexion between the university and the needs of society vary. In countries where there is no overall socio-economic planning, one should try to formulate proposals for methods of forecasting and meeting manpower requirements, for instance, periodic surveys of the market would be one way. Indeed, many of the techniques used in the Soviet Union may be used elsewhere, even in countries where there is as yet no manpower planning. In the latter, the universities must co-ordinate their activities with those of other governmental agencies. In some countries, where the university is unique, it may make direct contact with the employers of graduates. The Working Group was right to stress the regional basis of the problem and the principle is to recognize the complexity of the problem and the need to find different solutions for differing political, social and economic contexts.

IV. Planning of teaching staff formation

Professor Onushkin introduced this next topic for discussion and set out the principal findings of the project, among which were the fact that planning of teaching staff formation was often considered in isolation from teaching and research work, and that the information needed to plan this activity properly (future requirements for teachers; distribution of teachers' time among different functions and the various functions of the teaching staff at different levels) was scarce or non-existent in many universities. In addition, reliable methods of evaluating the teaching work were generally lacking and very little effort is devoted to improving qualifications and to the exchange of experience.

Therefore, it was clear that a number of problems remain to be solved and the participants were asked to centre their observations on three aspects:

- Basic factors determining the composition, quantity and quality of the teaching staff;
- Evaluation of the teaching work;
- The system of improving the qualifications of teaching staff.

The seminar was also requested not to take too narrow a view—the work of the teaching staff is basically controlled by themselves but, nevertheless, ideas for administrative control and a more rational use of teaching time seem to be necessary.

1. Basic factors determining the composition, quantity and quality of the teaching staff

It was felt that the vast expansion in requirements for teachers means that it is more and more difficult to put together a teaching body in which all the teachers have all the necessary attitudes and aptitudes. One approach to the problem of planning teaching staff formation might be to look at the functions of the university. It is perhaps possible to distinguish between the qualifications needed for teachers of undergraduates, and teachers of graduates or research students. One should ensure that the teacher of undergraduates, for instance, would be more interested in his students than in his research work—too much time spent on research can be detrimental. In Japan a proposal had been made to divide the

system of higher education into three—undergraduate, graduate and research institutions. Extension work would demand yet another type of teacher. The system could be flexible with movement from one to another. It might indeed be useful to identify the primary functions of different kinds and levels of teachers and to fix these functions, for a period of time at least. Obviously student/teaching staff ratios vary among the disciplines and planning should bear this in mind, but these should also be adjusted to take account of different kinds of support staff—in fact a lot of professors' work might be carried out by less-qualified staff.

Three members from developing countries recounted their experience in building up staff from among the most promising graduates of their own universities. In Cairo, the rapid increase in the student/teaching staff ratio had been counteracted by the appointment of assistants from among recent M. A. graduates who were still studying to obtain their Ph. Ds. The methods used to train them and improve their qualifications are described in detail on page 235. Khartoum University increased its numbers of national staff by sending university graduates abroad—in the early stages they were sent to gain Honours degrees but later on when the university had acquired its own degree-giving status, they were sent to gain Ph. Ds. The percentage of expatriate staff had been reduced to 25 per cent, but due to the expansion of the university, the absolute number has trebled. One of the shortcomings is that a lot of money has been spent to send people to carry out research and very little was spent on pedagogical training. Another deficiency is that little use is made of modern media, although these can, if well used, reduce costs per student.

The latter point was stressed by others—education is a labour-intensive operation and therefore a deliberate policy should be adopted to decrease this labour-intensiveness by the use of modern media. It was thought that further studies were needed of techniques which would increase efficiency and use of staff time.

It was also the Yugoslav participant's experience that most university staff are recruited from among the most talented students of one's own university—he himself recruits 90 per cent of his staff in this way—so it would seem advisable that formation should be begun at that level; the process should be systematized and culminate in a period of study abroad to gain experience. In this respect it was thought to be useful if international standardization of minimum recruitment criteria for university staff could be established.

An opinion was given that the problem of recruiting and keeping good university staff lay in the university teacher's status or standing—this did not mean simply the amount of money he earned but his role and place in society.

2. Evaluation of the teaching work

The problem of evaluation of teaching was considered to be an extremely complex affair where it is dangerous to oversimplify. For instance, assessment of the number of teaching hours per week must take account of time spent in preparation, which increases at the higher levels. Teaching hours should be multiplied two to three times to calculate the amount of work to be done. At the Western Australian

Institute of Technology they had succeeded after two years in negotiating an agreement with the academic staff whereby quality of teaching, contribution to the community, research, extension activities, etc., are all considered when salaries, promotion or even the withholding of increments are decided upon. However, it still remains to be seen how effective this system is. In Buffalo, USA, it had been found very effective to ask students to evaluate the teachers, since this makes the teacher prepare himself well for classes.

As to evaluation of the level of education offered by various universities, in the USSR there are both old universities with traditions and accumulated experience who work at a high scientific level, and also new universities who study the experience of the leading universities and make use of their teaching programmes, textbooks, etc. However, in order to measure performance, a series of inter-university competitions are held in which students from the same faculties in different universities compete with each other. Universities with less successful students are granted special assistance which may take the form of persons being sent to help in evaluating their work or even very highly qualified personnel to reinforce the staff.

3. System of improving the qualifications of teaching staff

It was not the normal experience in most countries for retraining to be systematized and it often depended upon the opinion prevailing in particular institutions or upon the staff themselves. For instance, in India the commissioners' report stressed initial orientation and then retraining every few years but the universities are autonomous and some professors are by nature 'no-changers'. Some external pressures or inducements are needed and in India one of these is coming from the students, who begin to complain if courses do not come up to the proper standard. In this connexion, the inducements offered in the Arab Republic of Egypt which help highly qualified staff to maintain their standards were listed: salaries have been increased to equal those of under-secretaries at the ministries; opportunities are given to carry out consultancies; as regards the availability of technical information, a study has just been made of the library which showed that they were not obtaining the most important literature in the most economical way; paid study leave is given every five years so that the professor may go abroad to carry out research; research prizes are given at the national and university level and if a teacher succeeds in getting his work published for a seminar or conference, the university pays his expenses to attend in order to encourage him to remain in contact with the latest developments.

In Australia, too, retraining is not generally carried out but in the Western Australian Institute of Technology a lot of attention has to be paid to this since many of the staff are drawn from industry. Teaching loads are reduced in order that teaching-training courses may be attended and a similar system is followed to that adopted in the USSR.

The latter was itself described—special institutes have been established and other institutions also offer courses with the objective of providing retraining of

each teacher every five years. As a rule the special institutes concentrate on the younger members who are not too sure of their teaching methods—in Leningrad the average age has been 33—and these include not only university teachers but others from technical schools. The institute for improving the qualifications of teachers of social science caters for something like 600 persons a year in two separate courses of five months each. Lectures are also given by industrial experts and Ministry officials which emphasize the applied aspects of the subjects and tangible results from these courses can be seen in the modernization of the curricula as well as in the teaching methods.

Summary of the Report of the Working Group on 'Planning teaching staff formation'

In presenting his report, the rapporteur said that the Group believed that the role of the university teacher is changing from that of a lecturer to more of a manager of the teaching-learning process and the report considers this in regard to conditions, training, incentives and so on.

1. The most important aspects

- (a) It was recognized that the appointment of new teaching staff is one of the critical management functions in the university because of the key role of academic staff in all aspects of university life. However, it should be recognized that teaching methods may differ according to the various subjects and considerable weight should be given to the candidate's research record and interests, range and level of teaching, experience of course development and evaluation, and participation in curriculum design.
- (b) The Group considered that the training necessary for university teaching is the responsibility of the university but that there is some resistance towards training due to the uncertainty on the part of many academics as to what constitutes 'good teaching' and the validity of training is particularly open to question if the objectives to be achieved by it are not clearly stated.
- (c) Training raises a number of questions which are common to all universities:
 - Should attendance be compulsory or voluntary? If it is to be on a voluntary basis what incentives are there to induce participation?
 - How best can release time be organized for the staff to attend courses during the university term as a recognized and valued part of their responsibilities?
 - At what level—departmental, subject or university—should training be organized?
- (d) It was pointed out that there are a wide range of related functions in university teaching, each of which require particular skills and might be included in any training programme:
 - lecturing;
 - tutoring;

- seminar leadership;
- curriculum design and development;
- personal and educational counselling of students;
- marking, assessing and examining of students' work;
- related administrative tasks.

These, in addition to research and public service, all overlap and complement each other.

2: Suggestions and recommendations

- (a) Training costs money and it is essential that a budget be established for this purpose both at the institutional and departmental levels.
- (b) Consideration should be given to the training and employment of the potential significant teaching force within the university, such as research fellows, demonstrators and graduate students. They may be used as counsellors and as specialists for the supervision of self-instructional materials and can be employed on a part-time basis or for particular sessions. It is for each university to examine the range of possibilities in the light of its own circumstances.
- (c) The question of incentives to encourage individual teaching staff to devote the necessary time and effort to the various aspects of their teaching responsibilities is very important. The most widely recognized is, of course, promotion, but this is not the only form. The second most potent influence appears to be the flexibility of the particular university in allowing the individual to use his total time effectively. Frequently the way in which the teaching load and allied responsibilities are distributed breaks up the individual's potential research or study time and makes it difficult for him to allocate the necessary blocks of time to it without distraction. Some universities solve this problem by allowing individuals to enjoy periods of 'high' or 'low' concentration of teaching in co-operation and agreement with their colleagues. In this way, during a term of light teaching load, the individual can concentrate more on his research or other functions. A further incentive, which is only recently being enjoyed by a limited number, lies in the area of educational technology. The development of special teaching materials for internal use can sometimes be extended as publishable products, bringing both prestige and revenue to the author.

3. Comment

Two comments were made on the report:

- (a) No mention had been made of international assistance. Many developing countries have special relationships with developed countries as far as teaching staff are concerned, and perhaps some reference should be made to programmes of this sort.
- (b) It is important to have definite planned training programmes, not just scattered scholarships, and it would be useful to recommend the awarding of staff training scholarships to develop faculties or build up new subjects systematically.

V. Planning of the teaching work

This was a subject which had been widely dealt with in the questionnaire and case studies and Professor Onushkin began by saying that as a result the relevant conclusions in the Final Report were based on a considerable amount of material.

Research showed that while teaching is an ancient activity, the planning of teaching is yet in its infancy. First of all, basic information is missing — many universities do not appear to have a clear idea of the kind of graduates they are training, nor for what purpose or role in life they need training; this is often regarded as the student's own business. Universities organize various elements of teaching, but they rarely adopt a systematic approach, for instance, the current preoccupation with new technologies and techniques of teaching gives attention to only one out of many elements of the problem. Moreover, there are often few links between the different disciplines to ensure that they complement each other and this general lack of system makes it difficult to achieve the best results from the teaching work.

During the work on the project it had often been evident that the teaching process is one-way, whereas it ought to be seen as a teaching-learning process in which the students' independent study forms an important part. In addition, it had been noted that there are no standards to define the appropriate amounts of work either for staff or for students and no machinery to control this. In this connexion, the quality of teaching is thought to be determined by the qualifications of the teaching staff, but this does not necessarily guarantee a high level of teaching if, for example, too much time is spent on research and there is little contact with students. The assumption that a teacher can teach at the same academic/research level as he has himself reached is a very questionable one.

The case studies undertaken show that in a number of universities efforts are being made to introduce elements of management and planning, for example, the case-study 'Methodology of planning of the university system in the USSR' includes an account of the complex indices which are used for evaluating teaching and distribution of staff time in the USSR. The Humboldt University study includes a description of machinery for constant evaluation, which is, in effect, a system of mutual control by the whole staff, and the efforts made at the State University of New York at Buffalo to formulate standards to evaluate the quantity

and quality of teaching work are also interesting. Obviously many problems remain unsolved and Professor Onushkin suggested that it would be useful if the seminar could discuss:

- Methods of working out and systematically renewing curricula;
- The involvement of administration, teachers and students in the organization of the teaching work;
- Methods of evaluation and control of the teaching work;
- The teaching work and use of modern media.

1. Methods of working out and systematically renewing curricula

The discussion on methods of working out and renewing the curricula clearly showed the influence which the level of national economic development and existence of central planning have on this area of university activity. For instance, some participants put forward definite and rather sophisticated criteria, whereas for others the main limitations are imposed by finance and facilities; in some cases specialization was considered to have gone too far and in others not yet far enough. However, it could be seen from the discussion that the trend towards specialization and individualization of study programmes is increasing—in some universities individual programmes are provided from the first year and in other universities they are not available until the third year and then only for the brighter students.

The necessity to cater for the individual is recognized in the following five principles which have been evolved in the USSR for planning curricula:

- (a) Students must not be overworked because this could lead to illness and other consequences;
- (b) The programme must not be too light or too easy—it must create a certain impetus and require a certain expenditure of energy so that only a minimum of time is absolutely free;
- (c) The programme must develop flexible and independent thought and give a fairly broad scientific, cultural and social view;
- (d) By the end of the programme, students must be ready to enter a specific field of work;
- (e) The programme must allow students freedom to choose the subjects which interest them and which are suited to their capacities, by the provision especially of optional subjects.

It is the interrelation of these principles which determines the quality of a programme and this is reflected in the variety of teaching programmes offered. There are independent plans and programmes designed by the major universities and approved by the Ministry; programmes based on those of the most experienced universities but suitably modified under the guidance and control of the Ministry of Higher Education for use in new institutions, and there are individual student programmes, i.e. individual modifications to the main plan for the average student may be made on request.

In Poland, a smaller country, the methodological work is more centralized

and there the teaching programmes are formulated by the Ministry on the recommendation of groups of experts brought together for each field of study. It has been found that the present scientific and technological revolution necessitates changing the teaching programmes every three to five years. Rectors and heads of faculties may amend the programmes of their own universities and there are also individual programmes for bright students of only two years' duration.

The necessity for constant re-examination of teaching programmes was stressed but this must be done in co-ordination with the whole system of education. Programmes cannot be modified on the analysis of one individual course alone. Broadly they should be based on the profiles of different professions or specialists so that the needs of society for manpower are met as well as incorporating the latest ideas and methods. They must indicate what needs to be taught in the first stage of study and the point at which broader or more narrow specialization should take place.

However, other speakers pointed out that conditions vary and there are many issues on which opinions differ, for instance, should the organization of studies be free or controlled and checked at each stage by examinations? What should be the relation between theory and practice?—in many universities now there is a trend towards practical work. How can one reconcile the demands of students, faculty and society in working out curricula?

A Spanish participant thought that merely to propose planning techniques is relatively easy but in considering the matter he had to ask himself what major changes had taken place in the teaching programmes of his own faculty and how had they come about? Would it have been possible to plan them in a more efficient way? The main changes had been greater specialization, more options, obligatory pedagogical training for teachers and the introduction of a medium-level diploma after three years which enables the diplomate either to work as a primary/secondary school teacher or to remain at the university to gain a full degree. These changes had originated mainly from faculty proposals which the ministry had approved or had been brought about by directives issued by the ministry in order to overcome a particular problem, e.g. lower-level diplomas will produce teachers more quickly. Therefore, although some changes were made to suit society's needs, in other instances this was not the case since there are often no direct links between the teaching profession and its environment. If we are to adapt curricula to meet changing needs, we have to ask questions about the degree of specialization needed and the amount of time which will be available for common studies before specialization. He did not think a National Planning Commission was capable on its own of changing the situation but that it was the university's duty constantly to consider the social orientation of the instruction it gives.

Others spoke of the changes which have been made or need to be made in the universities and the resistance and difficulties which have been encountered in the process of attempting to introduce planning. In one university they have been trying to introduce planning methods since 1961 and these were very often open to a good deal of criticism since the basic data was not always there. However,

this is being accumulated gradually and the experience has been a good exercise in making the faculties conscious of the necessity to plan.

It was recognized that now through teaching the universities must produce students who are not so much educated as educable. This requires a revolution in our teaching methods and not only has this change not taken place but it is being resisted. It is much easier to pass on information than it is to train the mind; it would seem that education has now gone full circle—the classical idea was to train the mind. It is obviously necessary to introduce teaching methods of the problem-solving kind and put more emphasis on an interdisciplinary approach but here we face the dilemma of most staff members belonging to a particular discipline who like concentration to be on their own subject, whereas in reality society is not so highly departmentalized.

At this point the Sudanese participant remarked that when launching new degree programmes, his university is trying not to create new departments and chairs, but to get existing departments to combine and collaborate. This brought up the subject of the difficulties of establishing entirely new fields of studies in universities in the developing countries. It was felt that here there was a danger that the subject would collapse as soon as foreign staff withdrew and the University of Malaya put forward its experience of overcoming this difficulty. In this university they receive a grant to send their best students abroad for Masters' and Doctors' degrees (preferably from two different universities) and then these people return to form the nucleus of the new department. Often this is done in co-operation with particular foreign universities by an agreement. A group of experienced teachers from this university will come for a short period to establish the subject and then will be phased out—for example, management is now taught entirely by Malaysians.

Re-orientation of programmes in the developing countries was seen to be of particularly grave concern—too often they were modelled on those of the developed countries and generally it was felt there were too many copies. The American University of Beirut has made efforts in this direction and now about one-quarter of the curricula is devoted to Middle Eastern questions, emphasis has shifted from undergraduate to graduate studies and research is oriented to subjects of concern to the Middle East.

2. The involvement of administration, teachers and students in the organization of the teaching work

It was the opinion of the seminar that ultimate responsibility for teaching programmes lies with faculty members, whether the programmes were worked out by a central authority or in the university. It was usual for the programmes to be submitted for discussion by all department staff, each professor having the right to modify the programme as far as his own courses were concerned, though his freedom is obviously limited by the constraints of logic, common sense, natural and physical laws, the scholarship of his equals and his own concern to retain his professorial authority. In Yugoslavia the universities have a committee of pro-

fessors and students for each particular year (the Year Committee) which is an advisory body and can express its comments particularly with regard to student needs.

There is one particular problem which is being faced in India as regards formulation of teaching programmes—the younger elements in the faculty are often out of sympathy with the traditional and authoritative manner in which the older deans and chairmen of departments carry out their work and no solution has yet been found to this.

3. Methods of evaluation and control of the teaching work

It was very interesting to compare the methods of control and evaluation used in different universities—these ranged through international assessors and examiners, state regulations, control by fellow experts, students' examination results, students' opinions, the follow-up of graduates and finally public and local community opinions.

In some universities control and evaluation is systematized, as in such countries as the USSR, the USA and Poland, whereas in others it is thought that the teaching profession is in any case always under a considerable amount of surveillance—at the lower levels the teacher is supervised by heads of departments and at the higher levels, he is subject not only to the constraints of his fellow staff but those of students and public opinion as well.

The system of external and internal control in the State University of New York at Buffalo (see summary of case study on page 333) was briefly described. This includes external control by the Middle States Association of Colleges and Secondary Schools and the Higher Education Council, and internal control by the Graduate School and Collegiate system.

Establishment of a systematic evaluation process is one of the most important activities being carried on at the University of Buffalo at the moment. It is thought essential to set different objectives at the university, faculty, college and department levels and three or four schools have started workshops to formulate them. However, it will be necessary to wait a few years to find out how this evaluation will affect planning at the university. Students sit on all the various committees, but it has been found that only at graduate level are they fully prepared to take the responsibility.

In the USSR control is conceived of as mutual control—the control exercised by other experts in the field. There is a system of examination commissions and each student comes before a commission once, when he is about to graduate. The earlier stages of control are carried out by the professors themselves who are responsible for assessing the level of teaching. The State Examination Commission is recruited from among professors of other universities (a dean or his deputy, or a professor teaching in that discipline) and perhaps a high-level person from industry or from a research institute as appropriate. The Commission's decision is final and its verdict depends on how the young expert defends his thesis. It sends its report to the Academic Board of the Faculty with comments on the

work, and suggestions about the programme and its shortcomings. These are often discussed by the Faculty Board. Collection of information on graduates has been carried on for some years and shows how the young experts perform in their subsequent jobs and later in life. Every so often there are meetings of different kinds of graduates and this information is assessed.

In India, too, it was thought that follow-up of graduates can make a great contribution to the evaluation of teaching, but they had perhaps gone too far in external evaluation and little was done internally. They were therefore searching for a happy medium between the two, e.g. on a micro basis, the students; and on a macro basis, the government, society and equals in the different professions.

Control has been exercised since 1968 in Poland by the university academic board and by the faculty boards within each faculty. Students serve on these boards and can comment on the quality of the teaching. Another form of control is the Scientific Council in each institute where the quality of degrees is discussed and these Councils include representatives of industry and professors of other higher educational establishments. In Poland, too, since there are not many universities, informal exchanges with colleagues from other institutions are fairly frequent.

Much interest was shown in the question of the value of student opinions in evaluating teaching programmes—in Poland they have recently circulated a questionnaire to students to obtain their comments, and in Yugoslavia students are asked at the end of each lesson how much they have understood and have been given the right to send in written comments. Experience has shown that this is fairly successful but that a certain amount of distortion occurs and this method of evaluation cannot be accepted by itself.

In the matter of importance of evaluation, two differing views from representatives of developing countries were put forward. In Malaya they were conscious that their degrees must be internationally recognized as students are always asking whether they will be admitted to other universities for certain doctorate programmes. Therefore, in this university external examiners are used to mark the papers; they actually come to Malaya once in every three years, while in the two intervening years the papers are sent to them.

The other view was that evaluation of teaching work is particularly important for African universities if the institution is not to find itself preparing graduates who will feel more at home in Europe than in their own countries. Therefore, it is essential to move the university itself closer to the people and continuously re-examine the objectives of higher education. Agencies of evaluation composed of university staff, students and members of the community must be created, but the problem was how to ensure involvement of the students and the community. Efforts have been made in the University of Ife; Faculty Boards include representatives from the relevant Ministries and professional societies and they are looking for ways to bring in other people, such as the farmers. It was their view that the university could not evaluate itself and if it were not afraid of public opinion, it would let others judge it.

4. The teaching work and use of modern media

Several participants reported increased use and interest in teaching aids: one stated that in his university 200 students could now watch an operation previously seen by only five at a time. In the University of Malaya, television is now being used to teach economics and education as well as medicine and consultations are being carried on to establish an Educational Technology Centre to bring all these media under central control.

The Director of the Institute remarked that generally it could be seen that what was lacking in the use of modern media was not the will but time and resources.

Summary of the Report of the Working Group on 'Planning of the teaching process'

The Chairman of the Group reported that there had been heated discussions on the methods to be used for evaluating the results of the teaching process. Some had said that a precise method for this should be put forward or planning would be impossible. Another point of controversy had been how to evaluate the activities of a professor within a faculty. Opinions had been put forward which were opposed to those expressed in the plenary session and so they had not solved this question in the Working Group.

1. The most important aspects

The Working Group considered that planning of the teaching process has three aspects:

- the curriculum;
- methods of teaching and availability of facilities and aids to instruction;
- evaluation of the teaching-learning process as regards both teaching effectiveness and student achievement.

Two other very important aspects were scientific and pedagogical formation of the teaching staff and research, but since these are being dealt with by other Working Groups they were only briefly discussed.

Planning the teaching process of individual subjects is primarily the concern of the particular department but in order to prevent fragmentation and duplication, planning must be co-ordinated at four levels—the teacher, the department, the faculty and the council—with care being taken also to secure student participation and advice from various organizations and experts within society. The university should always reserve the right to sift advice and adopt whatever course it considers best and the most efficient in keeping with its educational responsibilities.

2. Suggestions and recommendations

- (a) In planning the curriculum and timetables:

- A general university policy should set out the distribution of staff time between teaching, research, administration, committee work and public service.
- Curriculum planning should be a continuous process and not be confined to a rigid framework which prevents revisions from being made easily. Content should be based on the latest developments and the needs of society and allow for independent study, for example, while programmes may be similar in many respects, each student should have his own particular programme of studies.
- The teaching staff should attempt to develop interdisciplinary programmes since many industrial enterprises depend on a synthesis of knowledge drawn from many disciplines and this is a trend which will assume more and more importance in planning of the curriculum.
- Apart from the planning of adequate classroom, laboratory and library space, facilities should be provided which will enhance student learning from informal contacts with other students and staff.
- (b) Individual teachers have a heavy responsibility to keep abreast of the most recent scientific and pedagogical developments in their field. It would help them if there were a mechanism within Departments or Faculties for consultation and discussion about methods of teaching. By mutual agreement teachers might visit each other's classes in order to benefit from their colleagues' practice. Attendance at conferences and seminars should be encouraged and incentives provided for the staff to keep themselves up to date.
- (c) While some educational media might be particular to a Department and frequently used by it, the more expensive and the most widely used (computer, closed-circuit television, recording facilities, language laboratories) should be housed in a central service. This central service could also provide short training courses to the staff in the use of educational media.
- (d) A long discussion took place on student evaluation, but it was agreed that the faculty should provide very general guidelines for the evaluation of students' work in order that the evaluations of individual professors should be coherent and comparable. Different methods of evaluation were listed and the suggestion made that the following might be considered as well as the traditional written and oral examinations:
 - individual assignments;
 - students' reports to class;
 - participation in class discussions;
 - quizzes;
 - laboratory notes on experiments performed;
 - field work performed.
- (e) The above suggestions show the necessity for teaching staff to go beyond the mere teaching of their subject and that they should know more about the psychology of their students, methods of learning, the place and role of university education in society, the theory and practice of curriculum planning, the theory and practice of the teaching-learning process and that consequently universities should consider providing not only scientific training for their future teachers but also professional educational training.

VI. Planning of research work

Professor Onushkin, in presenting some of the results of the project concerning research, said that he had found that almost all universities consider research to be one of their first priorities and a major function, and yet information and planning of this aspect seems to occupy the least important place in the system. Those who undertook case studies on planning research had had to search for information. Universities organize their research in accordance with the individual work of professors, which is quite natural, but often there is a complete lack of co-ordination as regards the material bases necessary. In other words, this is a field in which there is often no modern planning whatsoever.

Research work in universities is different from that in research institutes since it must relate to and enrich teaching; the problem is how to improve teaching and research at one and the same time.

With regard to quantitative and qualitative evaluation of research work, despite the fact that the results of research play a decisive role in promotions, etc., the criteria are not sufficiently clearly defined. There are no practical quantitative methods for evaluating research, but this is understandable since the subject is very complex. One can look at the economic effects of applied or developmental research—a criterion which could not, of course, be applied to theoretical research, but for the latter one could look for the scientific effect, which is again difficult to measure. Nevertheless, there must be some form of evaluation if research is to be improved.

It had also been found that in many universities students did not participate in major research projects since it is thought that their main concern should be to gain degrees, but it has been seen that sometimes where students take part there is an improved economic effect.

However, it would seem that in the field of research, where actual results cannot be planned, planning activities should be concentrated on providing the physical and material conditions in which research can flourish. It would therefore be profitable for participants to discuss the following aspects:

— Role of research work in the university and the problem of optimizing the correlation of teaching and research;

- Methods and machinery for planning research and links with planning of finance and facilities;
- Basic indices and criteria for evaluation of quantity and quality of research;
- Involvement of students in research.

1. Role of research work in the university and the problem of optimising the correlation of teaching and research

It was generally agreed within the seminar that the amount and importance of research carried out by the universities is declining and that there is a tendency to open specialized institutes where, in many cases, the university staff may work. But at the same time it was believed that research improved the quality of teaching and one ought not to divide the two.

The latter opinion was particularly supported by participants from the developing countries who deplored the tendency for research to move out of the university. In their case research had to remain a basic university activity or else the best intellects might be attracted away from posts where they are needed. The more research, the better the curricula and future research workers. The introduction of new forms of study at undergraduate level—for example, interdisciplinary studies—can stimulate research as well as give the students an opportunity to help with projects.

An African participant had the impression that as far as research was concerned, they were playing a rich man's game. It might be asked why an African university did research and the answer was that they needed the methodologies which only research can give. Since they were poor, their research must be oriented towards serving the environment and they could not allow their academics the freedom to do research which was enjoyed by the individual in European universities. Although they send their staff back to European countries on refresher courses, they actually had a more urgent need to orient them to look into their own country. This might be done by allocating research monies on the basis of 80 per cent towards government-stipulated projects and 20 per cent to individual projects. It was obvious that they had more need of systematic planning and to establish priorities.

The Director of the Institute commented that it was perhaps true in developing countries that research should be the responsibility of the university. However, the structure of research varies from country to country and in the developed countries sources of finance vary enormously too. Research in universities means creating the proper conditions for staff, which has been very difficult, and this is why research institutes were established. In a lot of cases university research only looks at certain aspects while beyond this industrial and other research centres continue the work. He drew attention to the fact that university staff might work as consultants to other organizations and that this is a form of research. However, this makes actual research planning extremely difficult and perhaps the easiest element to plan is time.

Another view which was put forward was that although university managers

believe teaching and research to be complementary and beneficial, they are also aware that these two activities generate conflicting pressures. The tendencies of teaching are towards wide coverage and those of research towards concentration. These tensions or conflicting interests affect organization and staff formation. It would be useful to have a handbook which contained the factors and conditions relating to research activities in an institution, e.g. leave of absence, travel grants, laboratories, equipment, rights to patents. Frequently these are seen as separate issues and not as part of the whole question of research policy.

In regard to research policy, a more fundamental problem was brought before the seminar—the role of research within the whole system of post-secondary education. Can one imagine a structure in which some university institutions do research and others do not? Situations like this do exist (France, Norway) and this is one way of reducing the costs of higher education. It is true that university teachers wish to have the opportunity to carry out research, but it is not always true that the prestige of the university depends only upon the research it produces. One solution is to have an integrated university which includes post-graduates on short-term courses such as are at present organized in Denmark and the Federal Republic of Germany.

The Unesco delegate to the seminar pointed out that in any event whether we like it or not, the role of the university in research has been reduced as a natural consequent of the modern state of science. We all agree that the university as a teaching body cannot exist without research, but this does give rise to contradictions and difficulties in planning. The role of the international organizations in solving these problems is therefore increasing and they are contributing more and more to exchanges of information on research work. For example, a clearing-house for higher educational information in Europe has been created by Unesco in Bucharest and would begin to function in 1973. More such organizations for other regions of the world are envisaged. Secondly, international organizations can provide experts who will study and help to define the directions and orientation of research. This is not a simple problem since science is developing so rapidly. Thirdly, such organizations provide help to developing countries in the organization of research centres and universities.

2. Methods and machinery for planning research and links with planning of finance and facilities

The seminar found that in the planning of research, the main problem was catering for the individual freedom of research workers while at the same time ensuring that research meets certain national needs. It was evident that, in those countries where the individual professors had great powers of decision-making in research matters, generally little overall planning was carried out. Many participants held the view that the more science develops, the more it becomes clear that most discoveries of today are based upon a synthesis of many sciences (for example, cybernetics) and therefore it is more and more a question of team work. The old idea of a scientist peering into a microscope on his own and making world-shaking

discoveries is becoming less and less real. The progress of knowledge is therefore striking a blow at professorial autonomy. For example, in the USSR the launching of sputniks involves the work of at least ten different kinds of experts from varying fields. Thus the advanced nature of research greatly influences planning. It is not possible today to have an observatory of the right standard at each university—these have to serve several universities and be planned according to suitable geographical sites and according to the needs of the universities. The planning of research presents a continual challenge needing continually renewed methods because, by definition, research itself is new, and we can only hope to meet these needs in general terms.

Poland has just recently reformed its planning of research. Previously there were three institutions controlling research but this has now been reduced to one co-ordinating body at the national level. This results in a certain amount of autonomy for the universities within the framework of guidelines laid down by the state. There are, as it were, five types of research and five types of financing:

- (a) Major projects are provided for by the state—eighty projects have been designated for the whole of Poland and these are co-ordinated by the Institutes of the Academy of Science;
- (b) Other projects, for industry and agriculture, etc., are provided for under the plans of the relevant ministries;
- (c) Regional projects administered by district organizations in which the universities are involved;
- (d) Individual university projects which are usually fairly small;
- (e) Projects carried out for particular enterprises under contract.

One of the results for the speaker's university had been that this year they had received twice as much finance for research as last year and research groups have been formed for particular projects, not just for one year, but for two to five years. However, since this is a new type of planning, one would have to wait to see really how effective it was. Overall, the themes of research are more or less established but the system does lend itself to a certain amount of elasticity and bring research activities closer to the needs of the country.

In contrast to this, the Japanese participant thought that the universities in his country were among the least advanced in planning. This is mainly because the professor's powers of decision-making are very strong and everything must be initiated by him. For example, there is a large space-research project which began fifteen years ago, but it was organized by professors and there has been no university or government planning.

Another reason is that finance for research is distributed in two different ways. First each professor is awarded a research grant by the government; the university has no say in the way it will be used but these are not very large sums. Then there is a special research budget which the Scientific Council distributes to research workers who have put forward proposals. A committee evaluates each of them and decides on the amounts to be given. But there are three difficulties: (1) the total amount available for research is not enough; (2) most of the money is allocated to the natural sciences so that professors from the social sciences, for

example, complain of shortages; and (3) money is usually given on an annual basis so it is difficult to plan ahead. Only the big research projects are permitted to plan for longer than one year.

In Denmark too there is a tradition of free research and the government is not involved in planning. It has been found that the very shortage of funds will impel them to institute some system of priorities—one cannot just close one's eyes because it is difficult to make a choice.

At this point the seminar was reminded by a representative of a British university of the need to recognize different needs in different disciplines and, by extension, different planning and management needs. In the humanities, the tradition of the individual scholar still holds. In the social sciences, there is a tendency to do more and more work in teams. The natural sciences have always worked in groups with expensive facilities and full-time research workers and will continue to do so. The more staff, facilities and finance involved, the greater is the need for planning.

The speaker went on to outline a few results from a project directed by himself and a colleague. This was a team research project into the planning and management of British universities—they had looked at five institutions in depth and superficially at fifteen others, and had found that there were very few discussions about research at the institutional level. Such discussions tended to take place at departmental level and rarely did the decisions flow upwards. One had to decide whether this is desirable or not. Should there, in fact, be special machinery to co-ordinate research and, if so, where should the co-ordinating function operate: at faculty level or at university level? It would seem that planning at the university level is needed, if only because resources will not in future expand to cover all research areas the university can offer and priorities will have to be established. Also national pressures are being exerted to reduce unit costs and an increase in student numbers does not, in itself, justify increased proportionate expenditure on research. Moreover, there are possibilities of achieving economies of scale with the sophistication of the sciences and team-based projects.

Unlike teaching, research is an activity which is undertaken throughout the year while most of the administrative effort is directed towards supporting the teaching function. The idea that universities should exercise a creative management function as regards research is quite new. In the main the individual academic or group is left to his own devices to secure resources, etc. In view of this, it is useful to set out some of the basic aims which should be achieved by management:

- (a) to provide the best possible working conditions for research;
- (b) to attract additional grants and funds;
- (c) to introduce and support new patterns of research—interdisciplinary, problem-solving, co-operative research with other institutions;
- (d) to make the best use of resources.

These are obvious statements, but some universities might want to develop an institutional policy regarding special links with industry or to focus attention on a particular local problem—in the United Kingdom grant-giving bodies were increasingly adopting a policy of supporting focal points or 'centres of excellence'.

There will thus be greater pressure on the university to concentrate on particular areas and to optimize the use of additional resources. There are also pressures to assimilate research teams whose external grants have expired. It has been found that for every £100 of grant secured, a further £100 plus x must be spent by the university and it is more and more essential for universities to be aware of the implications of new projects. These should be set within the broader framework of other opportunities which will have to be foregone. They had developed a set of guidelines which would help to identify costs of new research proposals. In this connexion, he thought that one of the most valuable things which could emerge from the present project would be the refinement of the case-study outlines which would focus attention on the kind of questions the universities should be asking themselves.

The Director of the Institute pointed out that there seemed to be a universal tendency to define priorities but it was also true that the research carried out in universities as opposed to other institutes was the least costly kind. One should try to ensure a minimum margin of choice and manœuvre for the individual professor. In this he was supported by the majority of the participants, but it was also pointed out that the question of allocating research monies by project or by individual was an ever present difficulty. In the USSR the authorities are more inclined to give money to interesting projects and this was the case in the USA too, with the added stipulation of a finishing date. One of the participants from the developing countries remarked that the problem of money per individual or money per project did not really arise for them—it was more a case of no money for anybody. In the new universities in developing countries, there is no money for research and this means that the staff have to think in terms of personal research organized and financed by themselves. Frequently this can only be the theoretical kind of research for research's sake as this is the least expensive, but in the circumstances it is the least useful. Their countries had many problems and these ought to have priority. In this connexion he made a particular plea for international assistance and the proper orientation of post-graduate training offered by others to students from the developing countries.

3. Basic indices and criteria for evaluation of quantity and quality of research

The seminar was reminded that planning of research was by far the most complex of all university activities for the contents and results of research are dependent on numerous factors. In the USSR planning of research is carried out in various ways and generally any project which seems to have potential value is encouraged. The evaluation of results is particularly complicated and fraught with danger. An example of this is that there may be positively contradictory results. The speaker quoted an experiment with sleep-learning of languages—one research worker found this a most successful way of learning whereas another learnt nothing at all. This illustrates both the complexity of the problem and the importance of the design of research work to facilitate control of results.

Nor can we count on publications alone to evaluate results. Post-graduates and professors are inclined to do research on rather narrow theoretical subjects because the results are obtained more quickly and, though he may produce almost nothing, he can publish ten works on a subject. It may also happen that publications are not read at the time of writing if the scientist is brilliant and too far ahead of his time.

This serves to emphasize two important points: individual creative work, which today may not seem to be of much use, must not be stifled; and enormous care must be taken in evolving methods for evaluation which will pay sufficient attention to the researcher.

There are also negative reasons for maintaining consistent evaluation of research, for instance, it may be necessary to wind up a project. This is an extremely delicate task but one which the university increasingly has to face. It would be useful for the university to build up a profile of its research activities and their orientation. The problem then is should the university evaluate its overall research performance? If so, on what criteria? Professor Onushkin had already suggested some, but there are also the following:

- Number and proportion of research workers to full-time staff;
- Amount of research income from external sources as opposed to government sources;
- Allocation of research grants and fellowships;
- Quantity of material published;
- Academic distinctions awarded;
- Amount of staff time spent on research as compared to other activities.

These are only crude partial indices—evaluation has necessarily to be based on a combination of quantitative and qualitative indices. Clearly academic staff are constantly involved in reviewing their own research activities, particularly on contract work, but to what extent should the university as a whole be involved? One suggestion is that the universities should have a board of external assessors, but perhaps it would be better if all the units of the university at different levels could hold systematic discussions on the direction of research with subsequent recommendations put forward for university-level consideration.

The main criterion in evaluating university research in the developing countries was put forward as being its utility to the country concerned. Here it was felt that research as a whole should be oriented towards the applied, but they recognized that theoretical research was also of cultural and intellectual value, which brought up the problem as to how a proper balance could be established.

4. Involvement of students in research

As far as involvement of students was concerned, there have been many examples in the past where students in close co-operation with professors have made very important discoveries (insulin). In Yugoslavia nearly all students seem to be involved in research, but there must be some criteria for student involvement. Success in their studies was the first, but motivation and the ability to devote

themselves single-mindedly to research tasks is also important. Such students should be followed up throughout their studies.

Professor Onushkin, in his summing up of the discussion, said that many new prospects had been opened up. It seemed that the participants were unanimous as to the need to plan research work, and that this was as yet at an early stage in the universities. Such planning is becoming a more complex and a more collective enterprise and the choice of topic is becoming more and more significant, particularly in countries where resources are very limited. It might be that the suggestion of 80 per cent of resources to priorities dictated by the interests of socio-economic development and 20 per cent to 'free' research would be more effective than regulating all topics. However, planning of research must create the material bases necessary and allow for flexibility, and although the aim should be to meet the socio-economic development of the country, parallel to this it may contribute to international developments. Planning must also take account of individuality, the role of the university, evaluation of the effectiveness of the work, the government's role (since most funds are provided by the state) and co-ordination with other institutions.

Summary of the Report of the Working Group on 'Planning of research work'

1. The most important aspects

The Working Group was of the opinion that Professor Onushkin's Guideline for the case studies on planning of research work provided an extremely useful basis for discussions, since it lists a number of trends and problems. The Working Group did not therefore feel it useful to repeat them but referred the seminar particularly to sections 2, 3 and 4 of this document (reproduced on pages 427-454 of this publication). However, it had some further remarks to make.

The Group started from the premise that teaching and research are essential complementary tasks for all universities and that teaching is enhanced when conducted in an atmosphere of research. It is, however, necessary that the balance between the two functions be scrutinized more and more carefully as resources for education and research become relatively more limited. This is the case for the university as a whole and for the individual academic. The balance will obviously vary between universities, disciplines and individuals according to particular situations.

It was considered essential that the individual academic must choose his own research topic, yet at the same time universities increasingly face the challenge to relate their research activities to the social and economic problems of society. Thus there must also be a balance between the interests of the individual academic and external needs. This could be achieved in different ways and is often done by means of a national body, such as a Research Council.

2. Suggestions and recommendations

- (a) Each university should have the necessary machinery to review the overall direction of its research activities and, for this purpose, it is essential to have a comprehensive information base of all research in progress. It might be helpful for the purposes of the review to examine the balance between research which is oriented towards regional, national or international problems, or between pure, applied and contractual research, but there is no ideal balance of research activities and it will vary from university to university according to historical, geographical and political factors.
- (b) Normally the department will be the unit which organizes discussions about research between colleagues of the same discipline, but the Working Group saw merit in the idea of introducing a special committee for research at the university level which would have the brief to encourage interdisciplinary work and avoid overlapping or repetitious projects.
- (c) As to the allocation of resources for research within universities, it was generally agreed that it is essential to ensure a basic allocation per head for research, with a reasonably firm perspective of continuity of financial support—this proposition being based on the above premise that each academic should be involved in both teaching and research. Over and above this basic allocation, there should be the possibility to submit proposals for additional financial support which might be forthcoming from the university's own budget or from an external body. Such proposals would be made within the framework of the planning process outlined above.
- (d) Quality of research should be safeguarded by the introduction of systematic control procedures and the most careful consideration given to the conditions of work for the researcher. The conditions of appointment and service of research staff (some are engaged on a permanent basis and others on short-term contracts) are also important, particularly the amount of time to be allocated to research and teaching, for it is essential to guard against the isolation within the university of full-time researchers.
- (e) Finally, the question of evaluation of research was discussed. This takes place
 - (i) at the design stage when it would be of value to provide guidelines requesting the purpose, background and context, originality, feasibility in terms of time-scale and cost and anticipated impact of results; and
 - (ii) after the completion of the project. It is important to define who may undertake this evaluation and their competence to do so, and the Working Group felt it would be useful to encourage more organized exchanges of experience in this respect.

3. Comment

The Director of the IIEP commented that the management of research was fundamentally the problem of financing and allocation of funds. Research policy at the national level should set out the amount of funds to be given to university research and what the aims and purposes of it are to be, but if one looks at resource

allocation at the national level, one sees three priorities: national defence; prestige projects such as space exploration; and the advancement of knowledge. But there is a danger in the system—80 per cent of research allocations in some countries go to defence and prestige projects whose technological results are not controlled from the social point of view. Basically, research in the human sciences is neglected but these are problems which fundamentally affect society. The intelligent use of academic freedom is therefore essential in the modern world.

The Chairman of the Working Group replied that they had discussed this question at length and were all agreed that academics or scientists are the persons who should be responsible for decisions about implementation of programmes and their contents. Obviously someone who has no competence in the field has no right to decide.

VII. The university information system and indices for planning the development of universities

The session was opened by Professor Onushkin who stressed that, whereas the other subjects so far discussed were basic university activities, an information system is a matter of creating the necessary prerequisite for efficient planning and management which can only be effective if it succeeds in enlisting the active participation of all the interested parties.

For management purposes, a university must have information about its direct environment, national social and economic needs, the various internal processes of the university such as student access, teaching, finances and facilities and their interrelationships, and finally, it must have information on methods and techniques of planning.

From the case studies and questionnaires, it can be seen that in certain areas, such as the demand for graduates, use of staff time and facilities, information is very limited and, where it exists at all, does not constitute a systematic coverage of the whole complex range of interrelationships. As for modern management techniques, although universities are in the vanguard of science and technology and are working on improving industrial and other management methods, they make all too little use of them themselves.

Often attempts are made to create partial management systems—computers will be used only for student registrations or for budgets—and they are not fused into a coherent whole, whereas modern technology should be used for studying a range of interrelated activities which will then justify their potential and their cost. The Catholic University of Louvain case study describes a very interesting attempt to computerise the management system stage by stage and shows how it is possible to introduce a system gradually in a series of planned phases. The Humboldt University study describes the use of the computer for processing data for the whole teaching process, including the use and distribution of space and improvement of the teaching process.

It is essential to have a certain minimum of indices. There are the basic facts, such as numbers of students, staff, premises, equipment, the budget, etc., but what have to be studied are their interrelationships. Therefore, there is a need for relative or linking indices, such as staff/student ratios, student/space ratios, etc. These, however, still only describe one process without showing the consequences of

potential changes, such as the cost of changing the staff/student ratio, or the effect on this ratio of introducing a new technique or piece of equipment. It is only when a minimum number of indices are taken together that one has a meaningful description of the university's processes and of the consequences of decisions on potential developments.

The Final Report puts forward fourteen indices covering the basic university activities (see page 42 of this volume), but these are not dogma and the list is not final. Nonetheless, when invited to add further indices, none were suggested by any of the eighty universities which replied to the questionnaire. Professor Stolyetov's paper on 'Methodology of planning of the university system in the USSR' sets out a list of thirty-nine indices used in institutions in the RSFSR and there are also suggestions in the paper from the Western Australian Institute of Technology.

Professor Onushkin concluded by putting forward three points for discussion:

- The role of the information system in university planning and management;
- The basic types of data needed for planning;
- Methods of processing and interpreting information.

1. The role of the information system in university planning and management

There was widespread agreement as to the necessity for an information system for planning and management within the university. Examples were quoted of the problems created by information being located in such diverse places as the registrar's office, the budget office, deans' offices, student affairs office, laboratories, hospitals and a farm, as well as the experience of the French Ministry of Education who found that pieces of very expensive research equipment were sometimes being used for only one hour a week. Merely being aware is halfway to solving a problem.

However, it has been found from the last five to ten years' experience of a management consultant working in this field that in the implementation of an information system certain difficulties are likely to arise:

- (a) The time, expense and problems are greater than we imagine. In virtually every project it has taken far longer and has cost more than envisaged;
- (b) An information system almost always needs to be developed in stages. Since institutions cannot develop the whole system at once, they must choose systematically from an order of priorities. In almost every university there is a similar situation to that described above—the day-to-day operating system is imperfect; one cannot draw from it what one requires, and the system will have to be redesigned to produce both information for day-to-day operations and for long-term planning;
- (c) There is also a need for a clear set of priorities in order to produce sufficient results in the short term to justify such a large investment of working funds—for instance, if the teaching work seems to be fairly problem-free, it might be better to concentrate on space planning;
- (d) Although implementation will vary from institution to institution, there is still

a need for the general design of the whole system—a blue-print—to be worked out so that all the stages fit together at the end.

This was supported by the author of the University of New York at Buffalo case study who pointed out that one should not look for results in the space of only one year; his own university took three years to solve the problem of student registration. One of the major weaknesses in education is that though we may be able to control the operations, we cannot measure the output in significant terms. This objectives need to be defined very clearly.

It was remarked that setting up a planning and information office staffed with economists and statisticians will not necessarily solve the university's problems—planning is only an aspect of management and there must be at all times an interweaving of planning ideas and decisions taken on a day-to-day basis by management.

In Czechoslovakia the university information system had recently been integrated into other information systems. All data is collected in the Ministry of Education or the Ministry of Technology and there is a special body which decides on indices for the whole country, where information should be assembled and computers sited. They have a special service for research equipment which collects applications for purchases of expensive equipment and decides those to be made. They know where all apparatus is to be found: a research worker has only to phone up and he will be told where the equipment is, the conditions for renting it, etc. This service also exists for precious materials. Czechoslovakia also has agreements with other socialist countries and can make use of their apparatus. There are great advantages to be gained from integrating the information system with other countries and the smaller the country the higher the integration ought to be.

An African participant noted that the discussions seemed to be centred on sophisticated systems to analyse the activities of staff, students, etc., in large European and American universities and insufficient attention seems to have been given to working out a mini-system for mini-institutions. At times people seem to forget the main purposes of higher education. Even with the introduction of a small amount of planning at his university, faculties complain that they are being taken away from their teaching to supply information and that the registrar tends to assume more importance than the academics. There was, therefore, a cautious attitude about bringing management experts in to devise a system. He reminded the seminar that a university in Nigeria had just lost all its records in the Civil War, yet it is continuing to function. Who then is better off? The institution which is loaded down with information or one which has none at all? We need constantly to remind ourselves, and above all our managers, of the purposes of an academic community.

A reply to this was that it is true that management is more of an art than a science and however much data is collected, there remains an element of human judgment. In a time of rapid change all systems are compilations of the past and do not necessarily provide essential data for decisions about the future. Nevertheless, the situation in most universities has got to change since society is demanding greater accountability for resources given and society expects educational in-

stitutions to apply such methods of management and planning as work study and total systems approach, instead of just talking about them.

2. The basic types of data needed for planning

It was thought that the indices listed in the analysis of the questionnaire covered the majority of universities' requirements for information though it was suggested that an even more appropriate measure than 'Number of books per student' might be 'Access to periodicals and books'. Periodicals are more useful to students for research.

The types of information which are used in the USSR for central planning in Ministries and for planning in individual institutions were described. These were:

- number of students entering and graduating;
- progress of students and transfers from one course to another;
- composition of teaching staff: numbers, specialisms, level of qualifications, etc.;
- research: amount, subjects, finance, participation of students;
- material resources of institutions: equipment, laboratories, television, etc;

In addition, planners must have the following information regarding demographic factors:

- the state of secondary education;
- the demand for higher education;
- financial sources.

These all have to be unified so as to gain an overall view and to evaluate the effectiveness of work in the field of higher education.

The view was held that there are, in fact, no activities where information is not required and the university should have a vertical system with a movement of information upwards through the various levels. Each level would be responsible for its own purview and test its indices, after which they could be passed out horizontally. Above all, it is essential to study the weaknesses of the system for the purposes of planning future activities.

Some of the difficulties which might be found were mentioned. For instance, in any political system or socio-economic environment, the university operates as a unit and one of the main problems is the allocating of resources at university, faculty and departmental levels. At the university level the main problem, which is basically political, is the distribution of resources between operational units. Among the resources which may be given, some such as money and space are homogenous but others differ greatly from each other, e.g. teaching staff with its range of age, qualifications, experience, etc. How can one ensure that the staff are fairly distributed between units?—by salaries, number of young assistants, years of experience, etc?

To take another problem, can students be equated?—is a first-year equivalent to a third-year student? The French Ministry used to weight particular specialisms, e.g. law 1, literature 1.5, medicine 4.5 and natural sciences 15. It is obvious that some specialisms cost more than others. But at a university with a variety of

disciplines, the staff may well want similar treatment. Thus there are many difficulties in the way of finding criteria for distributing resources. What happens at the level of the department or faculty when it has received its resources? As these are limited, the department must give itself objectives, including priorities, and this is a delicate problem. The people or groups responsible will try to use methods which produce the best balance of costs on the one hand and results on the other. These are not easily expressed in money terms. How can one evaluate the results of a training cycle?—by the number of drop-outs and number of students who obtained degrees? But adult education cannot be satisfied with these criteria and each programme must find its own, together with the type of information necessary to decide whether changes are required.

3. Methods of processing and interpreting information

Analysis of information gained was originally done in the USSR by manual methods, then by punched cards and now by computers. An automated information system is being used in several universities in the USSR not only for planning but more broadly to evaluate the activities of individual units as well as of the institution as a whole. Also attempts are being made to formulate a system to help use information from computers located at universities, which will be of value not only to the administrative heads of institutions for their own use but for the use of groups of institutions. Computer centres have been established to summarize and analyse information from universities for government departments.

It must be remembered that computerized systems, especially for countries or institutions with less resources, are very costly and the danger is that scarce resources may be put into such systems only to end up with information which could have been obtained through manual and clerical techniques. Computers should primarily be used for simulation of all possible alternative decisions and for solving problems that are beyond manual techniques.

It was added that in a developing country there is certainly a need for computers but they should be centralized for common use. This would bring with it difficulties of communication which will be aggravated by lack of experts for this kind of work.

Summary of the Report of the Working Group on 'The university information system'

In presenting his report, the rapporteur of this Working Group said that he felt that theirs had been an easier problem because they had been able to avoid to some extent too much consideration of differences of a political and socio-economic nature.

1. The most important aspects

It was decided that any information system needed a firm basis of agreed university

objectives and that it should be capable of responding to changing demands, both as regards individuals and society as a whole, as well as being able to adapt to scientific and technological requirements.

The essential ingredients of a university information system were seen as being detailed data, kept under constant review, on the following:

- the economic and manpower needs of the country and community;
- demographic data, with particular emphasis on potential secondary education output;
- student population: composition, socio-economic background, male/female ratio, applications to admissions, assessment of academic progress, etc.;
- follow-up of graduates;
- academic staff: categories, salaries, workloads, evaluation, up-dating of knowledge, etc.;
- non-academic staff: similar data with particular emphasis on those who carry out functions which enable academic staff to devote more of their time to teaching and research;
- accounting data both for planning and operational purposes, inclusive of marginal cost data which may be valuable in making decisions between multiple choices;
- data for the examination of curricula and teaching methods having regard to changing socio-economic requirements, student perception and feedback data from graduates;
- utilization and relative utility value of central services, such as material resources, computer, student and welfare services, teacher training, etc.;
- comparative data on the above, on a national and international basis.

This list was not considered as exhaustive and the Group was emphatic in only one instance—that an information system was a fundamental requirement if planning and management were to be rational and effective.

In considering the major difficulties to be overcome in establishing an information system, the following important factors were isolated:

- (a) The need to see management as a coherent whole and not as a disjointed series of elements. This implies a need for democratization of decision-making and an 'information-sharing' system, conducive to a climate which perceives information as a tool for the common good and not as a piece of bureaucratic machinery. Some latitude in decision-making about details is necessary if innovation is to be encouraged.
- (b) The achievement of an understanding by the university community that they are accountable to the finance-granting authority, to the community and to their various clientele.
- (c) The necessity to avoid fear of information misuse and to safeguard confidentiality of personal data.

2. Suggestions and recommendations

The following practical recommendations for the institution of an information system were put forward:

- (a) The system should be of the 'information-sharing' type, open to the greatest possible extent, except for personal information.
- (b) The system design should be such as to permit automation wherever economical and feasible.
- (c) The system should be flexible, involve all the elements of the university and facilitate the exercise of 'responsible' autonomy.

Recommendations were also made to improve the standard of knowledge about university information systems:

- (d) The IIEP should consider the publication of a comprehensive account of differing systems, with particular emphasis on those not involving too high a degree of sophistication.
- (e) Universities should seek to develop staff exchange schemes for the purposes of learning from one another.
- (f) Such organizations as Unesco and the IIEP should consider the systematization of available research data on this subject with a view to its being utilized for training purposes in higher education.

VIII. The creation of a favourable planning climate in the university and training of planning staff

It had become apparent during the seminar that planning of the various activities within the university depended to a great extent on the general climate and opinion prevailing within the institution on the use of planning as a whole. Therefore it was decided to briefly discuss this problem.

Professor Onushkin began by saying that the creation of planning and managerial systems is only a prerequisite—planning involves not simply setting up machinery, but using it for agreed purposes. This in turn depends on involving all sections of the university. Participation in management is not merely functional, it is also good training for staff and students and will act as a counter to resistance to any changes which may be necessary.

The seminar was then asked, in the light of the feudal system which exists in many universities today, what can be done on the psychological level to make progress? Surely if reason is to be found anywhere, it should be found in the universities.

A variety of suggestions were put forward by the participants including:

- (a) The government could provide a framework and constraints.
- (b) A minimum of agreement on university objectives must be sought. These should include plans for development in the future, not simply plans for dealing with today's shortcomings.
- (c) There must be reasoning and discussion with all groups and they must feel themselves part of a single organization, especially the teaching body which tends to be obstinately individual. Procedures for the students must be set up to ensure that they do not think of themselves merely as consumers: some kind of motivation mechanism should be created. There is thus a need inside the university to enrol everyone from top decision-makers to students in the planning process—'A management system need not, and indeed must not, be a top-downwards control device'.
- (d) A handbook on how the university is organized and managed, and what its objectives are would help in orienting staff and students to know their duties as members of an institution which is there to benefit society as a whole.

During this discussion, the author of the University of Sussex case-study¹

1. V. Onushkin (ed.), *Planning the development of universities—I*, Paris, Unesco: IIEP, 1971.

remarked that the experience of his university, where the planning process is based on participation, integration and devolution of responsibility, was very pertinent to this problem and he stressed once again the main points. Planning is a political rather than a technical activity; to limit participation is to limit the range of experience and ideas for alternative solutions. Planning is pointless unless accompanied by a readiness to change and an ability to restructure the system, for example, there is no point in setting up a Management Information Office if the persons responsible cannot have their functional boundaries adjusted accordingly. All this depends heavily upon the attitudes of members of the university and their sense of being party to decisions. Clearly direct participation is possible mainly at the unit level and must be replaced by representation at higher levels, but planning is in essence a collective exercise of forethought and largely concerned with human relations.

He felt more attention should be given to the question of incentives, as logic and reason cannot work on their own. What is involved is a combination of education, training and incentives—the latter are perhaps the most important and will vary from environment to environment.

It was agreed that the question of incentives was all-important. In industry organizations survive because they have adapted to new technology whereas the universities were institutions which find it difficult to adapt and perhaps this is because the incentive and methods for re-organization are absent. One incentive—or threat—is that of the difference between the cost of existing faculty and its replacement. There are a considerable number of applicants for each vacancy and perhaps it might improve the planning climate if some of the people in the academic community were made a little bit uncomfortable.

There was also some discussion on the particular role of students in creating a favourable planning climate. A description was given of students' control and participation in higher education in the USSR which had the aim of ensuring that all students study properly and that they gain experience of management activities in an academic setting. All the main Academic Commissions include students and these ensure that time-tables are suitable; the better students are given individual time-tables and the weaker ones are given assistance. Students are involved in research work as soon as possible and there are Student Research Societies. Also 60 per cent of students live in hostels which are run by Students' Councils. All this fosters feelings of responsibility among students in preparation for their future employment when they may have to work as managers.

The seminar was then asked who exactly are the planners in the universities today? It was found that often they are people with no administrative role—those faculty members who make decisions regarding research and curricula which the university will use for some time in the future. It seemed to be essential to produce within the university system an academic who has developed management skills or a manager who has developed academic understanding.

An example was given of the danger of placing a pure management man in control in an academic institution—a computer specialist who had been sent abroad for training returned to make studies on space utilization. He concluded

that there was too much laboratory space and that some of it should be turned into professors' offices. An academic would not have offered such a solution to space shortage.

As regards the training of able administrators, the experience of industry might be used to establish staff colleges for academics to gain experience in management. This would need to be done on a macro basis and in fact would entail proper planning for introducing planning to the universities.



IX. Conclusion

Appreciation of the seminar was expressed by the participants. It was felt that many of the most difficult problems of planning had been discussed and a good deal of information had been exchanged. It was hoped that everyone would keep in touch and continue to collaborate on problems of planning the development of higher education. Indeed, solutions are more and more urgently needed as the problems become rapidly more complex.

Although the seminar marked the end of one project, it also marked the beginning of the search for solutions to many other complex problems in the field of education. The analysis of the questionnaire and the case studies have contributed to an awareness of the problems and awareness is the first important step towards solutions.

List of participants and observers¹

D. J. Aitken	International Association of Universities, Paris
Matta Akrawi	Department of Education, American University of Beirut (Lebanon)
F. Askholm	Head, Department of Economics, Odense University (Denmark)
Ungku A. Aziz	Vice-Chancellor, University of Malaya, Kuala Lumpur (Malaysia)
B. Bengtson	Chief of Administration, Odense University (Denmark)
L. Cerych	Head, Higher Education Programme, OECD, Paris
D. J. Daillant	International Association of Universities, Paris
A. B. Fafunwa	Deputy Vice-Chancellor, University of Ife (Nigeria)
Paul W. Hamelman	Virginia Polytechnic Institute and State University, Department of Business Administration (USA)
J. Herman	Director, Division of Higher Education, Unesco
Hassan M. Ismail	Rector, Cairo University (Arab Republic of Egypt)
H. Jones	Research and Development Officer, University of Sussex (United Kingdom)
H. M. Keyes	Secretary-General, International Association of Universities, Paris
G. Lockwood	Planning Officer, University of Sussex (United Kingdom)
M. V. Mathur	Director, Asian Institute of Educational Planning and Administration, New Delhi (India)
Z. Mironchenkova	Professor of History, Leningrad University (USSR)
Takashi Mukaibo	Provost, University of Tokyo (Japan)
C. A. Nelson	Principal, Peat, Marwick, Mitchell & Co., New York (USA)
A. Page	Institut d'Administration des Entreprises, Grenoble (France)
H. W. Peters	Assistant Director (Administration and Finance), Western Australian Institute of Technology, South Bentley (Australia)
S. Petracek	Faculty of Social Sciences, University of 17th November, Prague (Czechoslovakia)

1. This list gives the positions held by the participants at the time of the seminar.

K. Podoski	Research Group on the Economics of Education, Vice-Rector, University of Gdansk (Poland)
T. A. Razik	Department of Curriculum Development and In- structional Media, State University of New York at Buffalo (USA)
Naim Rifai	Faculty of Education, University of Damascus (Syrian Arab Republic)
J. Roche	Délégué Général aux Relations Universitaires Inter- nationales, Standing Conference of Rectors and Vice-Chancellors of the European Universities
R. Sanchez-Araya	Director of Planning, University of Chile, Santiago (Chile)
H. J. Schulz	Institut für Hochschulbildung und Ökonomie der Humboldt Universität, Berlin (German Democratic Republic)
M. Siguan Soler	Director, Instituto de Ciencias de la Educación, Uni- versity of Barcelona (Spain)
V. K. Stojanovic	Faculty of Medicine, University of Belgrade (Yugo- slavia)
V. N. Stoletov	President, Academy of Pedagogical Sciences of the USSR, Moscow (USSR)
D. I. Tchouprunov	Head, Planning and Financing Dept, Ministry of Higher and Specialized Secondary Education of the USSR, Moscow (USSR)
R. Poignant	<i>Director, IIEP</i>
V. G. Onushkin	<i>Head of the research project</i>
B. C. Sanyal	<i>IIEP staff member</i>

Summaries of the case studies

I. Methodology of comprehensive planning of the university system

A. Methodology of planning the university system in the USSR

by V. Stolyetov,
President of the USSR Academy of Pedagogical Sciences

1. Introduction

Scholars and scientists in the Soviet Union are constantly paying more and more attention to planning in connexion with the development of the university system and, as a logical consequence, to the methodology to be adopted.

Let us begin by looking at the matter from a negative standpoint and ask ourselves what are the processes and developments which are not planned. What is not planned is the 'production' of talent, the timing of scientific discoveries and the emergence of radically new basic theories. These are not planned, and no attempt is made to do so, because the conditions for the emergence of talent and the timing of scientific discoveries are still generally unpredictable. Soviet scholars and scientists strive for better planning of events, processes and objectives which are amenable to either direct or indirect quantitative appraisal and evaluation. In doing this, it goes without saying, they select for planning the events, processes and objectives which exercise a determining influence on such conditions as will promote, on the one hand, the fullest and most comprehensive development of the capacities of young people anxious to take an active part in industrial production or in the advancement of science and, on the other hand, the greatest possible success in the development of scientific research undertaken by university scientists of every age-group and degree of qualification.

1. Principles underlying planning the development of the university system

These principles rest mainly on: (1) lessons of the past; (2) the social purpose of education; (3) considerations of the present state of learning, identification of its trends and how it will develop in the near future; (4) ascertaining and studying the demands of industry, teaching and culture for experts and scientific workers. There are other basic factors which will be brought out when we come to deal with planning in practice.

The lessons of the past

The history of higher education goes back many hundreds of years and a thorough investigation of it can throw light on the future prospects for its development. The historical approach to dealing with the problems of planning is one which we consider not only useful but indispensable. A thorough investigation of the causes of the differing rates of development and different quality of performance from one university to another provides highly valuable information for planners. The same may be said of differing rates of progress of the various university chairs and faculties inside one and the same university.

How a young man advances in learning is a subject of great interest. It has been usual to regard the young graduate's individual amount of talent as the explanation for his rapid creative progress. Observation of life in universities, however, leads us to the conclusion that rapid and even super-rapid advance by young graduates is not to be attributed to natural possession of talent which is beyond the grasp of the scientific mind, but is rather to be explained by the prevailing state of the teaching process and also by the degree of a man's self-discipline, his application to work, his degree of desire for knowledge, the extent to which his personal will-power is developed, and a number of other features which are capable of being studied and accounted for. A strictly scientific examination of the road to creative advance taken by each one of large numbers of university graduates could provide very valuable data for the scientific planning of all sides of university life.

Finally, research into the past gives valuable information on the level of financial outlay on the training of each individual graduate. Initial investigations show that the level of financial outlay varies very considerably from university to university. The variations are determined in the first instance by the number of students at a given university, in a given faculty, and so on.

The social purpose of education

What is the social purpose of education? To be brief, it may be said that there are two variants of the answer. The first is that education trains qualified workers, employees and specialists; here, pragmatic and utilitarian aims are determinative. The other variant is that the imparting of instruction serves as the means and instrument of true education, of the development of the human personality, of awakening and developing a man's creative capacities. Here, the determining aim is the all-round development of personality; the training of young people not only to fill this or that function in the industrial world or in the many-sided realm of culture, but also to play an active part in the life of the country and in the finding of solutions for society's problems. It is this second variant that guides the universities of the USSR in the definition of their purpose.

Whether the first or second answer to the question is taken as the right one determines the methods to be adopted for planning and how the many questions connected with the activity of a university are dealt with, including plans for admission, their execution, the rules governing them and the transfer of students

from one university to another, what is to be the structure of curricula and course programmes, and how young graduates are to be given employment after completing their university courses.

Consideration of the present state of learning and identification of trends and future development

This must figure as one of the foundations of planning for the development of the university system.

In our day and with the present state of science and other knowledge and of production, the solution of the biggest problems facing us calls more and more for encyclopaedic knowledge. All the outstanding achievements of our time in the scientific, technical and industrial fields have been made possible only by combining the achievements of a large number of branches of knowledge which had become separated. Quite obviously, no one on earth is capable of mastering the whole accumulated body of scientific, technical and economic knowledge, nor were there such people in the past. Those teaching in secondary schools and universities mostly acquaint their pupils and students with basic knowledge on the interconnexion between the various scientific disciplines. This influences the organizational structure of universities and their programmes and curricula and, as a consequence, many aspects of planning of the development of the university system.

Ascertaining and studying the demands of industry, teaching and the world of culture for graduates and scientific workers.

This is a fundamental part of the planning of development of institutes of higher education. It is a highly dynamic process, evolving with the changing conditions of the national economy and culture. The following separate section of our report is devoted to an analysis of this complex question.

2. Planning of student enrolment

A good number of the planning indices for the future of higher education depend on the size of the student body. The size of professorial and other teaching staff, the scope of scientific research, the number of institutes of higher education (there is a minimum, optimum and maximum for the number of students at a given university), floor-area for teaching premises and living quarters, and expenditure on teaching material and libraries are all derivatives of the size of student enrolment. The greatest attention is therefore being paid to planning student numbers.

In the first years of the history of the Soviet Union, the number of students was determined by the annual admission to universities and institutes of as many as could be accommodated at the time in the lecture-rooms and laboratories. The October Socialist Revolution unleashed among the workers and peasants a

great desire for scientific knowledge and, as a consequence, fundamental changes have now had to be made to the principle originally adopted. A beginning was made by opening new universities in a number of cities that had been without institutes of higher education before 1917. They were allotted many of the best buildings which had previously been used for other purposes. In 1967 the state celebrated its fiftieth anniversary, and in 1968-69 many Soviet universities and institutes in turn celebrated their fiftieth anniversaries. In 1972 the system of higher education in the USSR included 824 higher educational establishments, including fifty-eight universities. The number of students was about 4.6 million.

After the ravages of war (World War I of 1914-18 and the Civil War of 1918-21) on industry, transport and agriculture had been made good, the country began its First Five-Year Plan which required large numbers of young graduates. In the years between 1928 and 1930 many new institutes of higher education were established and there was a sharp increase in the numbers of students enrolled.

A system has been gradually evolved for planning the size of student enrolment. This is decided on the basis of:

- (a) demand from industry in general and of the transport, communications and building industries in particular. The leaders in the industries concerned, basing themselves on technological considerations and on the forecasts of quantitative and qualitative changes in the volume of production, estimate what are their needs in young graduates and submit their claims to the planning bodies;
- (b) demand from agriculture;
- (c) prospects for the improvement and extension of the national medical service over the next five to ten years;
- (d) prospects for improving and extending secondary and university education over the next five to ten years;
- (e) bodies specializing in scientific research (the Academy of Sciences, the scientific research institutes and the laboratories serving various branches of the national economy, etc.) forecast the development of science over a longer period (ten to fifteen years), and define what specializations and numbers of young graduates they will need. The requirements of these specialized bodies are also reflected in the overall state plan;
- (f) institutes of higher education determine their own requirements for young graduates and put in their claims to the planning bodies. In doing so, as in the case of the bodies specializing in scientific research, they have an eye to longer-term requirements on the basis of forecasts of developments in science and technology. Thus, provision is made here for the training of specialists in fields not yet reflected in the demands put in by industry and agriculture, which are based on the requirements of the near future.

In the current (ninth) Five-Year Plan, provision has been made for the rounding-off of the country's overall system of secondary education. This will, of course, call for a further increase in the number of teachers and consequently require an expansion of training work. At the same time, the increased numbers of young people completing their secondary education will mean increased pressure from

those wishing to go on to higher education in the universities. This is also being taken care of. Our country is gradually coming nearer to the aim we set before ourselves, namely to provide specialized secondary or higher education for all those desiring it. With the achievement of this, the aim of all-round development of the human personality, of the arousing and developing of creative capacities of one and all, is realised.

All the demands for young graduates are collated and analysed by the planning bodies. The necessary amendments are made in the light of all that is known of the past history of higher education and the actual capacity of the institutes of higher education. The final plan for the five-year period is then broken down by years and forwarded to institutes of higher education to be carried out.

The assessment of plans for student admission to universities and other institutes is a matter for their administrative bodies, with the rectors playing their part as a matter of course. *It is the rector who has the most thorough and exact knowledge of the possibilities of the university under his charge* (material resources, professorial and other teaching staff, etc.). *Consequently, his decision on the numbers of students to be admitted and how they are to be allotted to faculties is the final determining factor.* Planning of the size of student enrolment must be practical and realistic and guarantee a high standard of training of future graduates. This is the reason for the important part played by the rector in planning the numbers to be admitted.

Each university prepares its own five-year development plan based on the state economic plan for the period, the student admission plan and the capital investment plan (one of the planning indices is 'Percentage of capital investment approved which was actually utilized during the period under review').

Students are admitted to universities and other institutes on the basis of competitive examinations which are arranged independently by each university. Students are accepted (irrespective of field of study, nationality, social position and other objective factors) according to marks obtained.

The teaching staff of the institutes of higher education make a painstaking analysis of the results of the annual competitive examinations and publish their conclusions in journals for teachers in secondary schools. These show up weak points in teaching in the general secondary-school system and thereby help to remove them for the future. Certain institutes and universities make an annual analysis and comparison of entrance examination results for a cross-section of schools in certain districts and cities and this shows up which are the strongest and which are the weakest schools and assists them in the exchange of experience gained in the course of their teaching work.

Those engaged in higher education show a continuing interest in what happens to the boys and girls who have not been admitted to university owing to their performance in the entrance examinations. This is done in the following ways:

- (a) The rector of a university or institute has to render an account of how the admission plan has been carried out to the superintending bodies. But he has the possibility (and many of them take advantage of it) of enrolling as supernumeraries a number of young people who have successfully passed the examina-

tion but have not won places in the competition. These supernumeraries attend lectures and laboratory courses and take examinations, and as and when student places become free (as places constantly do for many reasons) they are transferred to the basic student body.

(b) The great majority of Soviet universities and institutes have, apart from their regular day-time courses, evening and correspondence courses. Over the last fifteen years the system of catering for students released from industry has become firmly established in all our institutes of higher education. The existence of three systems of teaching has made for some complications in their organizational structure and administration. But what might be called the negative side has been fully compensated for by the advantages obtained.

(c) A proportion of those who complete their general secondary school education and for some reason take no steps to go on to an institute of higher education, start everyday work, generally in the manufacturing industries. Those also who did not succeed in the competitive examination and were not admitted to the university/technical school, take the same road. But these are not forgotten by the institutes of higher education which for a long time have held courses to prepare young people for admission. These are courses which may be attended by anyone with secondary education and wishing to sit for the competitive examinations. Good teachers are in charge of the courses and many of the students following them succeed finally in passing the competitive examinations.

In 1969 the institutes of higher education also set up special preparatory courses. Enrolment is among young people—workers, farmers and soldiers demobilized at the end of their period of military service. Most of those enrolled for these courses are released from work and receive allowances, while a smaller number study on a temporary release basis. All those successfully completing these courses and passing the final examination secure a place in institutes of higher education without having to sit and pass the competitive entrance examination. These preparatory courses make up for shortcomings in secondary education varying from school to school and contribute to ensuring conformity in the social structure of the student body and in that of society.

There are a number of centrally-situated and pre-eminent institutes of higher education in Moscow, Leningrad, Kiev and some other cities (where competition for entry is particularly keen) which offer enrolment *hors concours* to a certain number of young men and women from Soviet republics who have been studying at secondary schools in their own languages. There are difficulties, of course, for such young people competing with those who have completed their secondary education in the Russian language, but enrolment *hors concours* makes for equalization of rights and possibilities.

3. Planning for the employment of young graduates on termination of university education

The plan for allocation of employment to young graduates of day-time courses is usually set up eighteen months before the expected completion of the course.

The institutes of higher education base the plan on the actual numbers of pre-final-year students and put the final touches to it just before it is necessary to make appointments.

Each institute's plan is forwarded to the higher education administrative bodies, which then set up an overall plan for appointments and forward it to the planning bodies. These allot the numbers planned to the departments and bodies which have asked for young graduates, and the departments, etc., notify the institutes of higher education (via the higher education administrative bodies) what are the localities of the jobs and conditions of service attached to them.

Each institute of higher education sets up a number of boards (according to the number of men and women graduating) to deal with questions of their appointment to jobs. Those who sit on the boards are customarily representatives of the rector's and faculty deans' offices, of the professorial chairs and of public bodies. Each graduate, under the rules in force, makes his own choice of the area where he wants to work. In good time (three or four months before graduation) the boards inform the graduates-to-be exactly where they are being appointed and of the conditions of work. (Organizations and institutions offering jobs to young graduates are under an obligation to provide each one with living quarters and to pay for his journey from the university to the place of work and also inform him of the remuneration and service conditions.) Cases of dispute between the appointments board and the graduate are rare and, even so, eventually such disagreements are resolved to the full satisfaction of both parties. If the new graduate, because of family circumstances such as ailing or very old parents or for some other family reason, is unable to leave the place where he lives and there is no job there at that time, he is given the right to find himself a job by his own efforts. Such cases, however, seldom occur.

There is no system of appointment to jobs for graduates from evening or correspondence courses. In fact, each student is usually already working in the sector for which the course is designed. As they go on from one course of study to the next they are steadily raising their degree of skill and knowledge, and may expect promotion at their place of work. When the time comes for them to complete their studies they are already, as a rule, working at a job corresponding to their skills, but there are some exceptions.

It happens from time to time that some sector of industry, transport, communications, agriculture or culture begins to feel a great need for specialists of one kind (as quite frequently happens in a new technical field or in new branches of industry). This need has not been foreseen and it is desirable that it should be met as rapidly as possible. When such a situation arises, steps are taken to increase admissions to the first-year course for the subject in short supply and to increase the number of older students taking it. But the shortage is met mainly by transferring day-course students from related courses less affected by shortages. Day-time students are found to be very amenable and will transfer willingly of their own accord to such subjects. It has been found that the long-term plan of courses based on the future of science and engineering allows teaching staff to be switched readily.

At the same time, enquiries are made among evening and correspondence course students and some are found to be willing to transfer to day-time courses and to obtain their degree in the subject in short supply more rapidly. The co-operation existing between the three systems (day-time, evening and extension), which has already been touched on, and the flexibility it gives to the system of higher education, enables succeeding demands for young graduates from sectors of the national economy to be met rapidly.

Cases also arise—the number of them is increasing—where graduates from evening and correspondence courses express a wish (for personal reasons of the most widely varying nature) to be allocated a job under the state plan for employment of graduates. The authorities of the institutes of higher education are always in a position to meet such requests, since there are always more jobs offered than there are graduates from day-time courses.

4. Training of teaching staff for institutes of higher education and improvement of their standards

The training of young teachers for higher education is carried out principally by means of a system of post-graduate studies.

Universities and institutes with a large academic staff have a limit to the numbers of post-graduate students who may be enrolled. This limit is fixed for them each year by the planning authorities. When the limit is decided on, account is taken of, (a) the given university or institute's requirements of young teachers; (b) the requirements of new universities and institutes without full teaching staff; and (c) the requirements of scientific research institutes just starting up.

A post-graduate course lasts three years, during which the student is called upon to prepare for two or three examinations of Ph. D. standard on subjects set by the university council, also to gain teaching experience, carry out scientific research and submit a Ph. D. thesis to the university council. A good proportion of the post-graduate students meet all these requirements and end their studies with a Ph. D.

It can be seen from statistics over a longish period that 40 to 50 per cent of the academic staff of institutes of higher education are trained under the post-graduate study system and the remaining 50 to 60 per cent in other ways; of these, the two most important are the following:

- (a) A young graduate is attached to a department as an assistant or laboratory assistant—in big universities he will usually do both. He carries out his teaching duties and, at the same time, does his share of scientific research work. When he has assembled sufficient material, he turns to the preparation of his Ph. D. thesis and takes the relevant examinations. At this stage the university authorities have the right to grant him a year's leave on full pay.
- (b) After his university course, a young graduate goes to work in industry and investigates on the spot some technical or technological problem and prepares a Ph. D. thesis. A man working on these lines for his Ph. D. may be exempted from some or all of the examinations which others have to sit.

In the matter of the training of young teachers for higher education, the authorities of a university or institute are accountable to the planners for one thing only, namely the observance of the limit set for acceptance of post-graduate students. Recruitment of academic staff is entirely a matter for those in charge of the university and the university council. All members of the academic staff are elected and re-elected in a secret ballot by the university council which proceeds only after extensive discussion of each person concerned.

After achieving his Ph. D., provided he has behind him an adequate practical teaching period approved by the university council and a list of published scientific works to his name, the person concerned has the right to apply for the title of university reader. This is granted by the university council or faculty council and is confirmed by the Supreme Attestation Board which is permanently attached to the USSR Ministry of Higher Education and includes among its members the most eminent and well-known academics of the Soviet Union.

The next step along the academic teacher's road is the preparation of his D. Sc. thesis. Having his Ph. D. degree and the title of reader, he may choose between two methods: (1) As a result of his own personal scientific research work—his six-hour working day being devoted half to teaching and half to research—having accumulated an adequate amount of scientific material and having published a considerable number of scientific works, he may apply to the university council for a post as senior scientific worker in order to finish off his D. Sc. thesis. The council considers his application and makes a decision. When he obtains a post as senior scientific worker (for one to two years), he is completely relieved of teaching work: (2) Some of the readers do all the basic work for their D. Sc. thesis without giving up their teaching work and only towards the end are granted three to four months' leave on full pay.

Some years ago, a new system for the improvement of standards of all higher education teaching staff was brought in. Every five years, each staff member has the right to four month's paid leave which he may use as he considers best on: (1) attending courses for achieving higher teaching qualifications in his own subject; (2) scientific work in a research laboratory of interest to him under a noted scientist; (3) a training period in a leading industrial undertaking; or (4) finishing off a textbook, monograph or thesis. Of these, the most popular are work in scientific research laboratories, training periods in leading industrial undertakings and periods of creative leave for finishing off some scientific work or other, including theses.

In all universities and institutes in the RSFSR, each member of the teaching staff has his own five-year plan for the raising of his standards in teaching and in his own subject. The plan sets out his various activities year by year and how he proposes to use the four months' leave which he is granted every five years. The individual plans are collated in an overall plan for the faculty. Every year there is review of what has been done towards rounding off the five-year period. In this way, five-year period planning is a continuous process and the plan itself proceeds smoothly.

Planning higher standards for teaching and qualifications in a subject is an

internal university matter and must serve the purposes of university life and its improvement.

Courses are arranged in the leading universities and institutes for the teaching staff of institutes of higher education to attain higher standards under both heads and the lectures are given by professors of the highest grade of experience.

Many universities and institutes have continuous courses to provide higher qualifications for engineering and technical staff employed in the manufacturing industry and in administrative sections. These post-experience courses are very popular with those teaching in institutes of higher education; they lead to a strengthening of relations between the university or institute and those engaged in production. University professors inform those from industry about the latest scientific achievements and the participants impart their on-the-job experience. Both the professors and the participants are enriched by this exchange of information. Also, in the course of his encounters with the participants, a professor will often come upon interesting people capable of trying out some problem of the day in production conditions, taking part in scientific research being done by the department, submitting a thesis, or taking part in the department's teaching work and so on.

There is one further source of recruitment of university teachers, namely industry. Faculties of technology, management and industrial economics are glad to welcome experts from industry and these are often found when organizing courses for engineers, etc. The selected expert is given training for one year, after which the Supreme Attestation Board of the USSR may award him the title of Reader or Professor.

5. Types of institutes of higher education

The type of university or institute depends on a number of factors: on its traditions; the direction in which its teaching has developed; the composition of the faculties; the requirements of society and the economy; its geographic location; and so on. In each one, the interaction of these factors produces distinctive features and imprints a specific stamp. But if we examine the immense variety that results, we shall perceive characteristics which are common to all.

In pre-revolutionary Russia there were institutes of higher education of the university type with faculties for natural sciences and the humanities, and there were also engineering institutes of the polytechnic type and commercial institutes and agricultural schools with a full range of agronomic, livestock, forestry and engineering subjects.

At the end of the twenties and the beginning of the thirties, the national economy of the USSR began to feel a grave shortage of higher-grade specialists and rapid steps were taken to set up a large number of narrowly specialized institutes. Education departments were divorced from universities and some dozens of education institutes were set up. The same was done with schools of medicine. Some of the Departments of higher engineering institutes were taken to form narrowly specialized institutes devoted to steel, textile, machine-tools, chemical

engineering, aviation instruments, the motor industry, building and motorways, etc. These narrowly specialized institutes made a big contribution towards supplying the country with the specialists it needed for carrying out plans for industrialization, but as science and engineering develop, the big undertakings are coming to be more and more complex in their form and nature. This trend in its turn is affecting the institutes, and there is a tendency for them to lose their closely-specialized character and become more like polytechnical institutes. In 1930, for instance, a number of electric-power institutes were set up and turned out specialists in the construction and running of thermal and hydro-electric power stations. As time went on, these institutes brought in subjects covering radio-engineering, the electronics industry, computers, electronic instruments, etc., and gradually, the specialized power institutes became electric-power polytechnical institutes; in the same way, many other specialized institutes turned into polytechnical institutes with a considerably wider range of subjects. The national economy is making ever greater demands for specialists of university grade. Universities and polytechnical institutes (technical universities) have now become the dominant type of higher education establishments. This can be seen in Table 1.

TABLE 1. Universities and polytechnical institutes (by number)

	1960		1965		1970		1971		1972	
	USSR	RSFSR	USSR	RSFSR	USSR	RSFSR	USSR	RSFSR	USSR	RSFSR
Universities	40	19	42	19	51	27	52	28	58	33
Polytechnical institutes	31	19	50	29	52	31	53	33	55	34

The increases seen above are a reflection of the present scientific and technical revolution and its need for specialists with a broad mental outlook and a capacity to switch, when necessary, from work on one sector to work on a contiguous one.

In other words, closely-related subjects overlap and can successfully be amalgamated. Our modern age requires such an amalgamation of subjects and a solution of this academic problem is thus available.

University and polytechnic subject-groups dominate the breakdown of studies in institutes of higher education.

The proportion of university subjects and polytechnic subjects is the biggest and remains quite stable from year to year. This will remain so in the foreseeable future and, in the two groups in question, it is expected that later on there will be a degree of amalgamation of subjects. This is a conclusion suggested by trends observed in science, technical subjects, technology and industry.

A further matter of interest is the size of institutes of higher education according to the number of students enrolled. Investigations show that the amount spent per student goes down as the size of the student body in a given higher education

institute increases. The limits to such an increase are set not by economic considerations but by the possibilities of effective administration in the institute.

It may be asked why a planned economy permits so wide a variation in the numbers of students in institutes of higher education (from 500 to more than 20,000). Would it not be better to have a majority of establishments with fifteen to twenty thousand students each, rather than a large number with five hundred or one or two thousand? There is no doubt that, from the point of view of expenditure, it would be of greater advantage to have a lesser number of institutes each with a larger number of students. But in fact, in the planning of the future of institutes of higher education, we take into account not only costs but a number of other vital factors. Some of these are as follows:

- (a) Long-term planning aims at an even distribution of institutes of higher education throughout the USSR.
- (b) The USSR has extremely diversified natural conditions. Consequently, agricultural institutes are located as close as possible to the regions for which the agronomists, livestock experts and engineers are needed.
- (c) Training of teachers for the primary and secondary school systems is carried out as close as possible to the regions in which the future teachers will have to work, and for this reason every district and regional capital today has its own education institute.
- (d) Institutes of higher education training graduates for work in the artistic fields (theatre, cinema and the applied arts) by definition cannot be large in terms of numbers of students. Here also account has to be taken of national and regional aspects and also of the availability of qualified teachers.

There are other quite important factors. Each university, in planning its future development, takes into consideration the economic, scientific and cultural features of the republic where it is located and endeavours to meet the demands of the local economy and culture to the fullest extent.

When we look at the structure of various universities, it is immediately obvious that there are basic differences between each one.

In 1972 there were 824 universities and institutes in the Soviet Union. Each of them presents its own specific face to the world. This diversity is very desirable as higher education is able to retain its flexibility and achieve greater success in resolving the many problems which the life of the country poses, while at the same time it is better able to meet the demands made on it by the young people of the country. University councils, preserving diversity and flexibility, take care to ensure that a high standard of tuition for students is invariably maintained.

6. Planning of teaching and evaluation of teaching standards

The organization of teaching is on the basis of curricula and a model curriculum is devised for each subject by working parties made up of highly-qualified scholars and scientists working in a particular branch of knowledge in various universities and institutes. The model curriculum prepared is submitted for expert examination

by the most outstanding scholars and scientists attached to universities and institutes. Having successfully passed this expert examination, it goes up to the Scientific and Technical Council attached to the USSR Ministry of Higher Education. With the decision of the Scientific and Technical Council, the procedure of preparing the model curriculum is concluded.

The council of each university and institute, on receiving the model curriculum, adapts it to the conditions of their establishment, making the necessary modifications and refinements.

However, the most highly-qualified universities and institutes with big teaching staffs prepare their own individual curricula, which may differ widely from the model curricula. These are also examined by the Scientific and Technical Council and the prestige of these universities and institutes is sufficient to ensure that the scrutiny of the curricula is completed rapidly and favourably.

The programmes of courses for each general science and each general engineering subject covered by the curriculum are devised, scrutinized and approved along the same lines as the model curriculum. Each department, as it puts the course programme into effect, may, with the agreement of the university council, introduce such changes as are made necessary by the actual conditions in the university. Many programmes for mandatory special courses and also optional courses (of which the older-established universities and institutes have quite a large number) are devised by a high-powered working party and are confirmed by the university council.

A continuous check on compliance with the curriculum is carried out by the faculty deans and faculty councils. Checking on course programmes is in the hands of the department giving the tuition in question. But basically, checking of tuition is ensured by the responsibility of the professors and the rest of the teaching staff towards the students, towards the rest of the professorial and teaching bodies and towards society as a whole.

Before the young finalist graduates, there is a session of the State Examination Board in the department. The student is examined orally on his degree thesis or project and, based on his performance, the Board awards the student's degree. Membership of the Boards consists of professors from other universities and from the university concerned, well-known experts working in industry and representatives of public bodies. The Boards enjoy high moral esteem and their assessment of the student's level of accomplishment is final. The fundamental aim of the Board is to ensure a uniform standard of higher education in all universities. The degrees awarded to graduates by the various universities and institutes of the Soviet Union have the same legal weight anywhere in the country. The Boards aim at ensuring that degrees are also of equal value.

After a survey of all the oral examinations, the State Examination Boards draw up the conclusions they have reached about the theoretical training of the finalists they have examined and make recommendations for improving parts of the course programmes and for introducing new courses, etc. This is all notified to the university council and much importance is attached to it by rectors and faculty deans, who are aware that it assists the improvement of curricula and

course programmes. Events today are moving at such a rapid pace that curricula and course programmes, textbooks and manuals have to be constantly improved. This work is carried out by faculty councils, interdepartmental committees and by the university councils.

In this way, all curricula and course programmes in force, as well as improvements to be made in them, are the result of the thinking of all the professors and teaching staff of the university.

The standard of teaching depends on the teaching staff's qualifications, both pedagogical and in their field of study, and on the amount and quality of research carried out. Planning of research is done by individual departments according to their capabilities and inside the same faculty there may be some research projects on the most complex and topical subjects, whereas others may be quite simple. The weaker departments inevitably suffer some criticism in the university scientific councils. This serves as a stimulus, as also does the fact that research on more complex and topical subjects may well attract grants from the state committees for science and technology, industry, agriculture, etc. Such research also acts as a magnet for students and post-graduates. Research records are compared within the university and within the higher educational system, which is a procedure of great interest and leads to a higher intensity of scientific activity. It also assures a high standard of teaching.

There are many systems of continuous, on-the-spot evaluation of teaching, for instance, examination papers, but this is rather subjective and can only be used with great care and within a particular university. The most objective evaluation is the contribution which graduates make to society after they have left university and this can only be seen after some time has passed.

7. Indices for planning higher education

The indices set by the government for a Soviet institute of higher education are few and most of them have already been indicated; they are those for student admissions to the first-year course, appointment of young graduates to jobs, acceptance of post-graduate students, and those for planning of work, salaries and capital investments. Decisions on the majority of questions affecting the internal life of the university and academic life are left to be taken by the heads of universities (rectors) and university councils and there is no official accounting in connexion with these questions.

The supreme authorities and the university council keep under constant review the process whereby decisions are taken by the university regarding its own internal affairs. Some years ago, with a view to furthering exchanges of information, a group of scientists from universities and institutes analysed and synthesized their accumulated experience in methods of planning and evolved a set of indices.¹

1. It is intended to publish this list of indices in Volume IV of *Planning the development of universities*.

Only those indices are covered which can be expressed numerically and refer to essential aspects of the life of an institute of higher education.

The first list of indices is devoted to professors and the rest of the teaching staff. What is to be the degree of qualification of a man heading a department? The standard of teaching and of scientific work is dependent on how the question is answered. Every rector and university council endeavours to ensure that the majority of their departments are headed by persons with D.Sc.s and plans how and when this can be brought about.

The second list deals with raising the standards of the teaching staff. This we have already touched on. What was actually observed from the plan carried out in the past year serves as a basis for the following year.

The third list of indices deals with a most important question—how people prepare for their D.Sc. Here the relative indices are of particular importance, including the annual percentage of those submitting a D.Sc. thesis, out of those who proposed to do so. This is a figure which makes it possible: (a) to make a comparison of the various universities; (b) to define the success of each university in its endeavours to advance and develop; and (c) to make plans for the future on the basis of the present facts.

Next comes the question of preparing for a Ph.D. It follows the same lines as given above for the D.Sc.

Exchange of information between universities on how their staff have prepared for Ph.D.s and D.Sc.s and what the results have been helps them to profit by what is seen to be the best experience and to improve on what they themselves are doing. The rapid increase in the numbers of doctors of philosophy in all institutes of higher education promises an increased rate of output of doctors of science in the near future.

It is not possible to plan for each year the number of theses to be submitted, nor do universities and institutes aim at any such arithmetical precision, but in practice it is seen that a study of practical experience increases the rate of growth of the numbers of such theses and quickens the rise in the level of qualification of teaching staffs.

Other indices are devoted to the question of the post-graduate student system. In this connexion, each university under the official statistical system is accountable only for fulfilling the plan of acceptances. But this index, important as it is, does not bring out how much organizational work of importance to the life of the university or institute needs to be done. The universities try to ensure that every scholar or scientist (the doctors of science first and foremost) should have post-graduate students in attendance.

More specifically, the sixth list deals with the result of post-graduate work, e.g. how many of them on reaching the end of their probationary period submit a Ph.D. thesis? Information on the degree of success attained makes it possible to plan for improvements in the system.

The seventh and eighth indices deal with special post-graduateships. In the biggest universities a good number of the post-graduates are working towards the definite aim of: (a) meeting the teaching-staff requirements of departments in a

given university; (b) meeting the teaching-staff requirements of departments in new universities now being built up; or (c) meeting the needs which scientific research institutes and laboratories inside industry have for scientific workers. Planning of special post-graduateships has been shown in practice to produce very good results.

The next indices, concerning the 'numbers of teaching staff in general science departments of the institute who have a university education, as a percentage of the total number of teaching staff in the same departments', touch on a matter to which very particular attention is being paid by polytechnics and specialized engineering, agronomic and other institutes. In mathematics, physics, chemistry, biology, geology and the social sciences group, teaching staff with a university education are a guarantee of the highest standards of tuition. The institutes endeavour to ensure that in all general science departments members of the teaching staff are university educated.

Section II of the statement on the system of indices is devoted to questions of planning in connexion with scientific research work. In institutes of higher education this is financed either out of the state budget or by industry under agreements. The amount of financing per member of staff, scientific worker or engineer does not, of course, indicate the quality of research, but it does give an indication of the amount being done and the degree of activity. These indices make it possible to compare one university or institute with another and the analysis of the results of such comparisons promotes a constant increase in the research being done in institutes of higher education.

The value of scientific research carried out is judged by scientists and the scientific press. The determination of the economic impact (where this is possible) of completed scientific and technical research also serves in a certain measure as an indicator of the value of what is being done. The standard of research being done is also indicated by the volume of commissions received by certain universities from government bodies to solve problems of the highest significance for science, the national economy and culture. Only the most highly-qualified bodies of scientists can assume such commissions and, consequently, they serve as an objective indication of the state of scientific research in a university. The numbers of scientific works published and numbers of author's attestations, certificates and medals received from the USSR Exhibition of the Achievement of the National Economy are also indirect, but objective, indices.

The scientists in charge of departments in universities and institutes endeavour to bring students showing an interest in scientific work into their own research work. It can be seen in practice that a good number of these students carry out good scientific work and publish in the scientific press. In the interest of assessing the value of their scientific work, competitions and exhibitions are periodically arranged in regions or republics and expert committees, composed of highly-qualified scientists, make an appraisal of the work submitted. The authors of the best works are awarded special medals, attestations and money prizes.

Universities differ one from another in the numbers of students carrying out scientific research and in the results obtained. But an examination made of the

results and the exchanges of information that have taken place has promoted an increase in the volume of scientific research activity on the part of students.

Section III of the statement on indices is devoted to methods of tuition, of which one paragraph provides for figures on the number of students working on individual curricula. Institutes of higher education are authorized to transfer students to individual curricula which would enable them to make a more thorough study of a group of subjects of interest to them and to include in the general curriculum or to study additionally any subject not included in the general curriculum. In order to be eligible for transfer, a student in his first or second year has to demonstrate that he is hard-working and personally wishes to do this. The number of study hours and the volume of studying to be done in the case of an individual curriculum is higher than for the general curriculum. The university council, if satisfied about the student's application to work and his desire to transfer, usually grants the request.

The number of students working to individual curricula is thus an index of the standard of tuition and of the success of students' work. The planners aim at increasing the numbers of these students.

Paragraph 28 of Section III deals with the average number of hours spent on lecturing by a professor. Each professor decides this for himself but sometimes, due to the attraction of the scientific research he is doing, he will lecture for only the minimum number of hours. The university council has an interest in seeing that the students shall receive lectures from the professor rather from other categories of teachers. Reports on the number of a professor's lecturing hours help the university council to arrange that this number should be the optimum one, i.e. not to the detriment of either the students or the professor, and bearing in mind that the latter has both teaching and research responsibilities.

Section IV deals with social science departments. Institutes of higher education in the USSR are well aware of the importance of the education of students on the humanities side, and therefore a separate section is devoted to this. A rounded picture of the work of an institute is thus available.

Section V deals with extra-curricular activities. Under this are reviewed the results of the work of readers' study groups (for students wishing to do so can develop their speaking abilities) as well as the results of the activities of amateur clubs for those interested in theatre, music and choral singing, etc. Much attention is also paid to physical culture and students' sporting activities, to the organization of leisure time, and so on.

Evening and correspondence courses have their own system of indices adapted to conditions for teaching students released from industry.

The results of teaching activities are analysed on the basis of a system of indices; by comparing the results of the activities of all faculties and departments, the university council and rector's office are able to see which faculties and departments have been working most successfully. Further analysis brings out the conditions that have led to greater success. Exchanges of information between universities and institutes makes possible further analysis at inter-university level, and with this knowledge it becomes possible to plan the future standards to be

aimed at by faculties and departments. All planning of future development is anchored in the moral responsibility of the professorial and other teaching staff towards their young students, which means doing all that is needed to ensure that they become highly-qualified graduates capable of justifying all the hopes of society, at whose expense they have been educated.

Summaries of the case studies

II. Planning access to the university and the employment of graduates

A. Access to the University of Damascus, Syrian Arab Republic, and the employment of graduates

by N. Rifa'i

of the Faculty of Education, University of Damascus

1. The University of Damascus

Damascus University is the oldest and largest of the three universities of the Syrian Arab Republic. Its history goes back to 1903 when a School of Medicine was founded, followed in 1913 by a School of Law. The two were combined in 1923 to form the Syrian University. But it was not until 1946, after the French mandate had been ended, that Faculties of Arts and of Sciences and the High Institute of Teachers were set up. Eventually, in 1958, with the establishment of a second university in Aleppo, its name was changed to the University of Damascus, and it now has twelve faculties—Medicine, Pharmacy, Dentistry, Sciences (in which students entering the Faculties of Medicine, Pharmacy and Dentistry take a preparatory year), Engineering (including Architecture), Agriculture, Fine Arts, Arts, Law, Commerce, Theology and Education (which admits students with a first degree in Arts, Sciences, and Theology). In 1972, the Technical High Institute in Damascus became the Faculty of Electrical and Mechanical Engineering in the University.

The university had 31,000 students in 1970/71—twice the number in 1961/62. This number represents nearly half the Syrian university population, which itself amounts to 15 per cent of Syrians of university age. Quite a number of students come from other Arab countries, mainly from Jordan and Iraq.

The number of teaching staff in 1970/71 was 484, plus 235 technical assistants, part-time lecturers and visiting professors.

Essentially the university is an autonomous institution. Its head is the Rector, who is appointed by a Council of Ministers' decree for a period of three years. He is responsible for its budget, and he has the authority of a Minister. There are two Vice-rectors.

The Deans and Vice-deans of the faculties are appointed by the Minister from the teaching staff for a period of one year (renewable); their names are proposed by the Rector. The faculties are divided into sections, each with its head selected for a term of one year from amongst the professors, according to seniority of service.

There are four levels of councils in the university system. The first is the Section

Council comprising the professors, the assistant professors and two selected instructors. The second is the Faculty Council comprising the sections' heads, one professor from each section and a representative of the students in the faculty. The third is the University Council. Its authority extends over the university in terms of budget allocations, approval of curricula, approval of propositions for the nomination of the teaching staff, co-ordination amongst the faculties, decisions concerning the academic year and the periods of examinations, and the problems of the students. The University Council is presided over by the Rector and includes the Vice-rectors, the Deans, three representatives of the Union of Students and a representative of the Ministry of Higher Education. The fourth is the Higher Council of Universities (see Part 2).

2. Education and planning in the Syrian Arab Republic

The Syrian Arab Republic (S.A.R.) is a Middle-Eastern country of 7,500 sq. miles, with a population of 6.25 millions, growing at an average yearly rate of thirty-three per thousand.

The S.A.R. has, since 1963, been committed to development along socialist lines. The major industries are owned by the Government, but private business continues to develop, and agriculture, which provides 17 per cent of the national income, is still in private hands. The *per capita* GNP in 1970 was about U.S.\$ 240. Between 1960 and 1970 the Government undertook an agrarian reform in which 1,759,000 acres of land were redistributed to 40,000 families.

Overall economic planning is of growing importance, and the country is now in its third five-year plan. Plans from each Ministry go to a Higher Ministerial Council for economic and social planning, which decides priorities and financial allocations and draws up the main guidelines. These plans include manpower projections, according to which people are nominated for jobs or selected for short-term training or for long-term study and training. Also the Central Bureau of Statistics is producing information based on the 1970 census and is drawing up studies of manpower needs.

Elementary education has been made available and is compulsory from the age of 6 to 12. There follow three years of intermediate and three years of secondary schooling. All these levels of education are free.

University education, which in principle is free, lasts for four years on the average, though in medicine it takes seven years. There is a Higher Council of Universities over which the Minister of Higher Education presides and which includes the Rectors, Vice-rectors, a professor from each university elected by the University Council, two experts, two representatives of the Union of Students and the representative of the Ministry of Higher Education. The Rector of Damascus University is the Vice-president of the Council. This Council draws up the general policies of higher education in the universities, carries out the co-ordination between the universities, approves proposals for the appointment of professors, decides the number of students to be admitted and their requirements, and deals,

in general, with all the problems which have a bearing on the universities in their inter-relations. Planning the development of universities is a responsibility shared by the Ministry of Higher Education and the Higher Council of Universities. It is the duty of the Minister of Higher Education to represent the universities in the Council of Ministers and to approach this Council for all the needs of the universities. The budget of each university is approved by the Council of Ministers.

The Syrian Government has recently shown a keen interest in the development of the Syrian universities. In particular, it is anxious that the universities should have the opportunity to admit a larger number of new students. Before the beginning of this academic year, the President of the Republic asked the universities to admit all students who passed the examinations of the secondary school certificates unaided. And, in fact, all those who applied were admitted to the universities and the intermediate institutes.

Admission to the universities of many more students is important because it means, amongst other things, that more people from rural areas have the chance to become graduates and to contribute more to the social and economic development of the country. Students from rural areas have some special privileges relating to the conditions of admission to some faculties. Moreover, the great number of students may force the universities to start new courses of study needed by the country, e.g. the new courses started by the Ministry of Higher Education in the field of the oil industries. On the other hand, the large number of entrants to the universities will lead to more difficulties when they graduate.

The cost of higher education for the last five years varied between 12 and 20 per cent of all Government expenditure on education, of which the largest share went to Damascus University.

3. Organization of admissions

In 1968 an Office of Planning was set up at the university and it was called upon to help prepare the third five-year plan for higher education (1970-75) and draw up the main expectations for the development of higher education for a period of fifteen years (1970-85), when the population of the country is expected to reach ten millions. In the event, however, the Planning Office found that when faced with a university of twelve faculties and 30,000 students, it could do no better than pass on the information it had received from the faculties; the faculties were clearly keen on retaining their planning responsibilities. As a result, the Office is now following up the execution of the items of the five-year plan relating to the university and is reporting monthly.

The five-year plan has some twenty-three items relating to higher education; in general terms, the universities and institutes are asked 'to take gradually more students to meet the flux of students on the one side and the actual needs of development in the country on the other'. But these needs are not specified in the plan in terms of student numbers, though many details are given about new buildings, etc.

Since 1957 the university has received many more applications than it could admit, mainly due to the increasing number of students passing the Secondary Education Certificate examinations. How then do the faculties decide the number of new students to be admitted?

Development planning starts, in principle, with the faculties; the Faculty Councils consider the different proposals from the Section Councils and then take their resolutions for the coming year. These resolutions pass on to the University Council and then to the Higher Council of Universities for discussion and approval. The faculties and their sections know their current resources and student numbers. But they are faced, at the present time, with inadequate information about the needs of the country or the availability of jobs. In these circumstances, the academic staff have to depend on their own judgment in preparing their plans and deciding the number of new students to be admitted, and naturally their first considerations are the standard of teaching and of the teaching facilities. In the Higher Council of Universities, priority is given to the needs of the economic and social development of the country, including the need to admit more students. Recently a new directive was decided on by the Higher Council of Universities to the effect that new students should be mainly directed to the science faculties. At any rate, the Higher Council's decisions about how many students to take, how to distribute them among the various faculties and what to require of them are different in emphasis from the proposals put forward previously at Faculty and University Council levels.

In this decision-making, the wishes of the students are not taken into consideration. The Higher Council of Universities does not ask for the number of applicants to different fields of study before coming to its final resolution on access. In fact, students apply for admission only after the announcement of the Council's resolution. Their wishes are respected later when they fulfil the required conditions of admission. Even then, their wishes are taken into consideration only within the limits of the numbers to be admitted in each faculty.

The resolution of the Higher Council of Universities on admissions usually contains all the details about the number of students to be admitted: Syrians and non-Syrians; their qualifications; the kind of entrance examination required in certain faculties; the application and registration dates; and the categories of students exempted from the general requirements. But the Higher Council has not always followed the same line in limiting the number of students to be admitted. Looking into the different resolutions from 1961/62 until 1970/71, one can see that the Council has gradually imposed a stricter limitation on numbers to be admitted to any faculty; students now have to have specific totals in the Secondary Education Certificate examinations. A student with a total of not less than 184 marks out of 240, for example, can register for medicine. Another with a total of not less than 182 can register for engineering. Students who do not have the total required can apply to certain faculties if they have high marks in the subjects related to the main field they want to enter at the university. A high mark in mathematics, for example, is required when a student, short of the necessary total, wants to apply to the Faculty of Sciences to study mathematics. A selection

from amongst these cases is made later, but the number eventually admitted is very small.

Requirements for admission have always included the Secondary Education Certificate. But while the scientific section certificate is accepted for admission in all faculties, the literary section certificate is accepted only for admission in the Faculties of Arts, Law, Commerce, Theology and the section of Plastic Arts in the Faculty of Fine Arts. The non-academic certificates are accepted only in case of admission to courses of study in similar fields, e.g. the certificate in agriculture is valid for admission to the Faculty of Agriculture only and the theology certificate in the Faculty of Theology.

In a few cases there is an entrance examination. This is limited now to the Faculty of Fine Arts, and to the Faculty of Engineering for the students who have a technical Secondary Education Certificate.

The distribution of new entrants to different fields of study

In 1971/72, the new entrants to the university were distributed in the following proportions:

	<i>Percentage</i>	
Medicine	3.4	} or 21 per cent taking sciences in their preparatory years
Pharmacy	1.8	
Dentistry	0.2	
Sciences	15.6	
Engineering	5.0	
Agriculture	3.5	
Fine Arts	0.8	
Arts	46.0	
Law	15.0	
Commerce	5.4	
Theology	1.5	
	<hr/> 100.0	

In particular, the figures for the ten-year period up to 1971/72 show:

- (a) Considerable fluctuations in the total numbers admitted, reflecting the establishment of new faculties at Aleppo University in 1965-67, and the changing policies of the Higher Council of Universities about the level of performance in the Secondary Education Certificate examinations to be achieved by candidates (as a result, 75 per cent of students passing the examinations were admitted in 1964/65, and only 28 per cent in 1970).
- (b) The percentage of students admitted to the preparatory years of medicine, pharmacy and dentistry, and to the Faculty of Agriculture has increased steadily; this has been due to the national policy of encouraging entry to the sciences,

and to the University building up its teaching facilities in the fields relating to human health.

- (c) The four Faculties of Arts, Law, Commerce and Theology together admitted more than 67 per cent of the new entrants. The Faculty of Arts alone has been admitting between 35 and 70 per cent of all the new entrants to the University during the last ten years. No-one can say that new entrants to these faculties reflect the manpower needs of the country, or that it is reasonable that about 10 per cent of the students going into the University should be studying English literature. This state of affairs reflects the tendency to meet the pressure of the high number of students passing the Secondary Education Certificate examinations by admitting very many of them to the University and directing them to the Faculties of Arts, Law and Commerce. Thus, in 1971/72, the universities were asked to admit all the 21,000 students who passed the Secondary Education Certificate examinations in June 1971.
- (d) A certain number of rural areas are considered by the Higher Council of Universities to be under-privileged culturally and are exempted from the general requirements of grades and totals. A fixed number of students living in these areas are admitted in each faculty on condition that they have the Secondary Education Certificate with a total mark of not less than 50 per cent.
- (e) The Government gives financial aid to those who find it difficult to support themselves as students; the number of those receiving financial aid has been increased during the last five years.
- (f) The great fluctuation in the number of new entrants to the different faculties throughout the past ten years gives a clear indication of the lack of long-term overall planning behind the distribution of new entrants. Moreover, it gives a clear indication that the university has not efficiently used dependable information on the availability of manpower in the country.

The pressure of numbers

The increasing pressure of candidates wanting to enter the University raises two important questions: what is the effect of large numbers of students on the standards of teaching; and what is the provision of alternative centres and forms of higher education?

Between 1962 and 1970 the university nearly doubled its student population, partly because of the increased numbers of those staying on for a longer period than the minimum needed for a degree. While the number of teaching staff increased also, the budget did not make it possible to build up teaching resources adequately in many faculties. The overall staff/student ratio improved from 1:85 in 1962/63 to 1:64 in 1970/71, but these figures conceal serious discrepancies among the separate faculties, as shown in Table 1.

The ratios in sciences and theology are far from healthy, and in arts, law and commerce they are still so high that one can understand why many students are not completing their studies in the normal minimum time.

As for the second question, about the availability of other institutions of higher

TABLE 1. Staff/student ratios in the various faculties of Damascus University

Faculties	Staff/student ratios	
	1962/63	1970/71
Medicine	1 to 11	1 to 15
Pharmacy	12	18
Dentistry	4	19
Sciences	29	50
Engineering	59	25
Agriculture	26	19
Fine Arts	16	10
Arts	198	189
Law	422	139
Commerce	402	102
Theology	73	72
Education	41	29

education, on the one hand there has been the development of the universities; more faculties have been set up in the University of Aleppo and a new university has been established recently in Latakia. And on the other hand, the Ministry of Higher Education has been making efforts to establish new higher institutes, such as the new Institute for Petrol Sciences and Industries that has been recently established in Homs. A third approach has been the establishment of some intermediate institutes attached to special faculties at the university. The period of study in the intermediate institutes lasts two years, leading to a certificate which qualifies the holder for a post as an aide to a university graduate in certain specified fields. One of these institutes was attached to the Faculty of Engineering. Another was attached to the Faculty of Agriculture. A third started recently as a Secretarial Intermediate Institute and was attached to the Faculty of Commerce. The student population in these intermediate institutes is now about 1,500. The success of the experiment cannot yet be evaluated. There is no sound data about the availability of jobs for such certificated people, although the general feeling is that the country needs such people.

The pressure of numbers bears no particular relationship to the country's demand for specialist manpower. And in fact all too little is known about manpower demands. There are enough indications that the country needs more medical doctors. Reports in the Ministry of Health indicate that the ratio in the country is 1 to 5,000 and, in some districts, it is as high as 1 to 15,000. The case of the dentists' ratio is worse, as the reports indicate. Again, there are reports in the Ministry of Education about the great need for science teachers and about the rather smaller need for history, geography, philosophy and English teachers. But similar information about other demands for manpower, such as industries, commerce, engineering and even finance, is lacking. The Ministry of Planning has not yet achieved much. The Central Bureau of Statistics is about to study the

existing conditions of manpower distribution. Meanwhile, the university plans admissions on the basis of the information available, of the University's teaching facilities which cannot be developed easily and quickly, and of the growing number of students seeking places. But the university does not take into consideration the expected number of applicants to each special field of study. It does not wait to receive the applications. When there is a flux of students, it takes what it can here and there in the different fields of specialization, and many students will be left out. But, always there is one factor that cannot be forgotten: the university should admit more students.

4. The employment of graduates

Students are admitted to the different fields of study according to their marks in the Secondary Education Certificate examinations. Total marks appear to be the main deciding factor, and the students' wishes come next. Thus, a student with a rather modest total applying for medicine could, in the end, be forced to register in commerce. This student will not have been oriented by the university to study commerce because of his abilities, nor because the manpower distribution in the country made that kind of study necessary. In fact, he is pushed towards commerce against his own will because the only other alternative is to stay out of the University.

In most cases, this student accepts what is offered to him, registers at whatever faculty admits him, and starts studying. If faced with difficulties, he may come to a teacher for advice. But he cannot come to an office concerned with guidance or counselling because no such office exists at the university. There is no advisory body at the university dealing with professional orientation, though the draft of the new constitution of the university refers to such a system and emphasizes the necessity for the professional orientation of the students.

Table 2 clearly reveals the large number of arts graduates and the comparatively modest numbers in the sciences and the fields related to human health. The table also shows the large number of students who fail to pass their examinations and who therefore stay on at the university.

But having taught and trained these graduates, the university leaves them on their own once they have left. The Ministry of Higher Education does not interfere either, and there is no organization in the country that plays a part in forecasting and planning the employment of graduates.

Graduates in medicine, dentistry, pharmacy or engineering can start working within a few weeks after graduation. There are good opportunities for them to get jobs with the different ministries and institutions concerned. Or they can start work on their own. When working privately, the doctor, dentist or pharmacist has to stay for a period of two years in certain regions which are in great need of such services. In this respect, they follow certain directives issued by the Ministry of Health. The engineer does not have to follow any special rule as yet.

Of the other graduates, those in the sciences, agriculture and the few in fine

TABLE 2. The numbers of Damascus University graduates in different fields, 1970/71

Faculty and Sections	Students entering exams.	Students passing exams.	
		Number	%
Medicine	209	208	100
Pharmacy	123	115	93
Dentistry	108	93	86
Sciences	466	303	65
Engineering:			
Civil	80	72	90
Architecture	20	11	55
Fine Arts	35	22	63
Arts:			
Arabic	735	427	58
English	170	133	78
French	91	73	80
Geography	498	324	65
History	735	368	50
Philosophy and Sociology	264	130	49
Law	942	432	46
Commerce	286	173	60
Theology	200	105	52

arts do not have difficulties in getting occupations. Of those in law and commerce, some work privately, but the majority apply to the ministries and institutions concerned. Their job opportunities are becoming less and less. The third category includes the graduates in arts and theology, whose main field for occupations is the Ministry of Education. They are running into some difficulties in finding employment because their number is more than double what the ministry needs.

Graduates who apply for work in a ministry have to wait for a statement by the ministry concerned announcing its need for graduates. After applying, they take a general kind of professional test based partly on an interview. Then they have to wait till they are later invited to come and start working. This procedure usually takes from two to six months. Meanwhile, those who are badly needed, such as graduates in sciences, may be invited to start working on a daily or an hourly basis.

The concentration of graduates seeking employment in the cities is one of the main difficulties facing the Ministry of Health. But the Ministry of Education has applied a rule to the effect that a newly-appointed teacher has to serve anywhere he is appointed for a period of two years before he is moved to his home town. Moreover, the teacher in remote areas has a good chance of earning more money by giving extra teaching. Added to this is the fact that one year of service in some remote areas equals one year and a half in the number of years required for a pension. These rules did not prove effective when the Ministry of Health wanted to apply them. To encourage medical doctors and dentists an additional bonus

was offered to them. A few accepted, but the bonus appeared insufficient to many others and concentration in the cities has continued.

For the last few years, the university has been hearing that some of its graduates are unemployed and that some others have occupations of a lower standing than they should have. Such news reaches the university through direct contact with the officials of the different ministries. However, the university has no statistics about the unemployed and employed among its graduates. It does not have any contact of real value with them. Moreover, the university does not have an office concerned with graduate questions, nor does the Union of Students at the university have any committee connected with the graduates and their employment. The graduates themselves do not have a special club nor an alumni. The recommendations of the Conference on Higher and University Education Development held in August 1971 do not include any item about university graduates or the employment of graduates. It looks as though people at the Conference were engaged with far more pressing problems, and did not think that the extent of graduate problem had reached any dangerous proportions.

The university interest in the problem is not, however, nil. It has started publishing the names and numbers of graduates in the different fields, and the Office of Planning at the university has started preparing an investigation into graduates and their different occupations. Moreover, the Supreme Council of Sciences has produced a statistical study of all graduates in the different fields and another on their distribution in the different sectors in the country.

Improving the qualifications of graduates

Each faculty is empowered to start postgraduate courses to enable graduates to obtain higher qualifications. So far the only faculties to start postgraduate courses are Education (for an M.A. in Education), and Law (for a Doctorate).

The university does not offer any kind of re-training or refresher courses to its former graduates or to people from the different branches of the economy who have university-level education. However, the draft of the new constitution of the university refers to the university's role in retraining graduates and it gives the university the right to organize training courses of a short duration and of one-year duration ending with a diploma of proficiency.

5. Final comments

The experience of Damascus University in meeting the problem of planning the admission and employment of graduates raises several points about the difficulties and shortcomings which face a university linked to a national system in a developing country.

- (a) Planning the admission and employment of graduates cannot be considered separately from the other activities of the university. It is not possible to draw up a long-term plan of students' access to the university if it is not coupled with a

long-term plan of developing teaching facilities, teachers' availability, administrative efficiency and financial resources.

- (b) Moreover, planning university activities cannot be effective if it is not a part of a national system of planning. To be effective, planning access to the university has to be linked with the employment of the graduates. Both of them cannot be effectively planned if they are not based on a solid basis of adequate knowledge of manpower distribution and future needs.
- (c) Planning access to the university and the employment of graduates cannot be effective if it is not made part of a comprehensive educational system in a developing country. The open-door policy in secondary education results in greater demand for higher education. Admitting all the applicants ends in creating difficulties that will affect the course of the university's development. Moreover, such a policy will also affect the development of the country because of the balance needed in manpower distribution.
- (d) The points mentioned above make the introduction of a system of professional guidance in the national system of education urgent. Unless students in the intermediate and secondary schools are helped to see which professions are best for them, there can be an unbalanced concentration in certain streams of secondary education. This can upset any planning of access to the university.
- (e) The experience of the University of Damascus reveals some failures on more than one occasion. The introduction and quick termination of the evening courses, and the General Licence in Arts are but two examples which provide evidence that a university should not take an important step in the course of its development unless it has been studied and planned carefully. If the university does not have the capacity to plan, expert advice should be sought.
- (f) Each university is linked, in one way or another, to the society in which it functions. The University of Damascus is part of a national system. It is neither a private institution nor a foreign one. With such a status, the university has special national obligations and is influenced by the society in which it exists. Therefore, judgement of the university's activities should not be made solely on absolute or universal standards. Environmental conditions should have their place in our endeavour to find criteria and indices to evaluate the development of a university.

B. Access to the Federal University of Bahia, Brazil, and the employment of graduates

by Jorge Hage Sobrinho,
Assistant to the Rector, Federal University of Bahia

1. *The Federal University of Bahia*

The Federal University of Bahia (UFBA), which was instituted in 1946 and reorganized in 1968, is situated in the city of Salvador in the State of Bahia in Brazil. It is an independent corporation under the authority of the Ministry of Education and Culture, and enjoys autonomy in academic, financial, administrative and disciplinary matters.

Structurally, the university consists of bodies for higher administration and bodies for teaching, research and extension courses and services.

Bodies for higher administration are as follows:

- (a) *The University Assembly*, which takes note of annual work-plans and reports on work done;
- (b) *The University Council*, with powers to formulate overall policy for the university, to draft and modify its statutes and internal regulations, and lay down rules and standards with which units of the university and its ancillary bodies are obliged to comply;
- (c) *The Council of Trustees* which controls and inspects the work of the administration on the economic and financial side;
- (d) *The Coordinating Council*, with the duty of coordinating and supervising teaching, research and extension courses and services.
- (e) *The Rectorship*, the executive arm; the rector has the duty of coordinating, inspecting and superintending activities in the university concerned with planning and the budget, teaching, research and extension activities, care for the needs of students, welfare, the campus and works, and finance and administration in general.

The bodies concerned with teaching, research and extension activities fall into three categories:

- (i) *Basic teaching and research units*: Institutes of Mathematics, Physics, Chemistry, Biology, Geosciences, Health Sciences, Human Sciences and Philosophy, and Letters; and the Arts School.
- (ii) *Occupational teaching and applied research units*: Faculties of Medicine, Law, Economics, Pharmacy, Dentistry, Education; the Polytechnic; and Schools of

Nursing, Architecture, Music and Scenic Arts, Nutrition, Librarianship and Communications, Agronomy, Veterinary Medicine, and Administration.

(iii) *The ancillary bodies*: The Central Library; The Centre for Afro-Asian Studies; The Professor Edgard Santos Hospital; The Climerio de Oliveira Maternity-home; The Museum of Sacred Art; The Technological Services Centre.

These bodies, which are responsible for teaching, set up programmes for first-degree, post-graduate and extension courses, carry out scientific research and provide services to the community.

The university units have their own structure and internal regulations, although, for purposes of management, they all follow the structural plan set out below:

- (a) *The Congregation*, a collegiate and deliberative body concerned with the formulation of general policy for the unit;
- (b) *The Departmental Council*, for the coordination of teaching and administrative activities in the Departments and the harmonization of work-plans;
- (c) *The Management Office*—the executive arm—concerned with coordinating, inspecting and superintending the work of the unit.

In the present structure of the university, the "department" stands out as the most dynamic and innovative of its organic units. Taken together the departments make up the university units. They are the basic 'cells' of the structure and provide the administrative, academic and scientific point of concentration for the work of teaching, research and extension courses. They form the meeting-point for the teaching staff and are responsible for teaching in the disciplines they cover.

For the coordination and harmonization of the work of each course (which may extend beyond the scope of a given unit), there are further the so-called Course Chapters whose members are the professors in the various departments responsible for setting up the minimum curriculum for each course.

In 1972 the university had 13,152 students registered for higher courses of professional training, including 423 following secondary school courses and 183 following courses leading to master's degrees. And it has a total of 1,300 professors. About half the students and two-thirds of the professors are involved in mathematics and the sciences.

The academic superintendence section of the Rectorship includes three divisions, for selection, orientation and evaluation, with the following responsibilities:

- (a) *The selection division*:
 - (i) plans and carries out the general and specific selection of students;
 - (ii) coordinates the entrance examination;
 - (iii) supervises formulation of the examination papers;
 - (iv) studies, reviews and evaluates the results of the entrance examination.
- (b) *The orientation division*:
 - (i) undertakes measures for the orientation of demand for higher education, based on research done by the Planning Office, in connexion with general and specific selection;
 - (ii) promotes oriented recruitment of students in the secondary school system;
 - (iii) disseminates information on the labour market prepared by the Planning Office.

(c) The evaluation division:

- (i) analyses the benefit derived by the students from the various university courses;
- (ii) analyses the teaching methods and materials;
- (iii) looks after the statistical service for teaching matters.

The registration service

The general course secretariat is responsible for the registration of all students attending the university. It is also charged with the following duties, which are carried out by the appropriate sections:

(a) The receipt and information section:

- (i) receives and registers requests and applications from students for the various courses, at all university levels;
- (ii) gives information to the students.

(b) The admission and registration section:

- (i) keeps the registers of students in liaison with the mechanized processing service.

(c) The diplomas and certificates section:

- (i) issues, in the name of the university, certificates and attestations, students' record statements, degree diplomas and other documents of importance to students;
- (ii) registers students' diplomas and certificates.

(d) The curricula and programme section:

- (i) registers the curricula of the various courses available;
- (ii) registers the programmes of the faculties;
- (iii) prepares and updates the University Handbook.

(e) The timetable section:

- (i) prepares timetables for university lecture-rooms;
- (ii) organizes the use of lecture-rooms and other localities available for student activities;
- (iii) prepares the academic calendar, both half-yearly and annual.

The planning office

The Planning Office is the 'general staff' of the rectorship, under the direct supervision of the rector; it has the following specific functions:

- (a) collaborating with the organs of higher administration in the definition of university policy;
- (b) preparing and submitting the overall plan of university activities, in accordance with the directives issued by the higher bodies of control;
- (c) advising the rector;
- (d) conducting surveys, studies and research necessary for university planning;
- (e) the systematic analysis of quantitative and qualitative demand for, and supply to, the labour market in respect of degree-holders;

- (f) the study of the proper allocation of the university's resources;
- (g) the study of and search for new sources of funds for the expansion of the university's activities and services;
- (h) the preparation of the draft budget for the year and for several years ahead.

2. The structure of higher education in Brazil

Brazil is almost half the size of all South America, occupying a vast area of central and north-eastern South America, with an Atlantic coastline of over 4,800 miles. Well over half its total area is forested, although most of the hardwood trees are difficult to exploit, especially in the largely unsettled basin of the Amazon river in the north. Brazil possesses extensive agricultural resources and is self-sufficient in food.

The rate of economic growth, which was relatively high in the late fifties, slowed down in the early sixties to less than one per cent above that of the population. Agriculture continues to provide a high (just under one-third) proportion of the gross national product (GNP) while a well-developed manufacturing sector contributes over 20 per cent. The contribution of the wholesale and retail sector to the GNP is only about 12 per cent. The manufacturing sector's rate of growth during 1950-62 was quite high, averaging nine per cent per year.

The total population is 100 million, with a relatively low density of twenty-nine per square mile. There has been a fairly rapid movement from rural to urban areas; the urban population rose from 36 per cent in 1950 to 52 per cent in 1970, and this has brought increasingly difficult problems of city congestion and instability.

The Republic of Brazil is a federation of twenty-two states. The state of Bahia is situated on the east coast, though it is normally counted as part of the north-eastern group of states. In area it amounts to 6.6 per cent of Brazil, with 8 per cent of its population. And it produces 90 per cent of the total cocoa crop of the country.

The states are responsible for primary and secondary education. Pre-elementary schooling is provided in urban areas for children up to six years old. Education is free in official primary schools and compulsory between the ages of seven and fourteen, although the tendency in rural districts for children to start school late brings the average enrolment age to over nine years.

Although the high drop-out rate of children at the elementary level is still a serious problem, illiteracy has steadily been reduced to the present rate of 26 per cent of the population. Secondary education, until the recent reform of the law, was divided into a four-year basic course and an advanced course of three years; now, in accordance with the Law No. 5692, the whole educational system at these levels has been reshuffled, the elementary and secondary levels having disappeared as such and been transformed into an integrated 'fundamental' course of eight years, plus a three-year 'professional' (terminal) course.

In cases of economic need, education is free, but a system of repayable grants is being encouraged.

Between 1960 and 1969 the number of primary pupils grew by over 70 per cent, and the number of general secondary pupils by over 310 per cent. But in spite of this progress, relatively few enrolled pupils graduate.

In 1970 23 per cent of the federal budget was invested in education.

Higher education in Brazil is primarily the responsibility of the Government which maintains the majority of the universities. The public sector is responsible for about forty-six higher education establishments; of these, forty are dependent on the Federal Government and the rest belong to state governments. There are some universities or isolated schools maintained by private organizations, the most important being the 'Catholic universities'.

Higher education

Higher education in Brazil, like education in general, is defined in the constitution as a right enjoyed by one and all, to be provided by the authorities and open to private enterprise on condition that the provisions of the law are observed.

Thus, establishments for university education are official bodies, either federal or state, or private, the latter being able to count on technical and financial assistance from the authorities, so long as they comply with the official rules or have equivalent rules to those laid down for the organization of federal establishments. Also they have to apply for recognition by the Federal Government and are subject to periodic inspection by the Council of Education.

The object of higher education is research, the promotion of the sciences, letters and arts, and the training of professional people of university calibre.

In accordance with the restructuring of universities decreed by the Federal Government in 1968, the organization of each federal university is based on the department (its smallest 'cell') and the university unit (which may be a faculty, a school, an institute, or even a centre), which is defined as a body for both teaching and research in its field of study. The fields of study in question are those connected with the mathematical, physical, chemical and biological sciences, the sciences related to the earth itself and to man, as well as with philosophy, letters and the arts.

Basic teaching and research are concentrated in units which together form a common system for the whole university. Teaching for vocational training and applied research are carried out in separate units, one for each field or group of related occupational fields, as provided for by the plan of each university. Teaching subsequent to graduation is the responsibility of the teaching and research units. Teacher training is the responsibility of one unit of vocational teaching and applied research.

All the work being carried on is supervised by central boards for teaching and research which are located in the higher levels of administration and whose members are drawn from the various sectors of basic study and occupational training. The organization of courses is the responsibility of each unit or of a body representing a sector, set up for the purpose and with the duty of coordinating the work of allied units and ensuring integrated activity. Coordination of teaching is the

responsibility of a chapter on which sit representatives of the various departments dealing with the branch of teaching in question.

Apart from its component units for teaching and research, a university may also set up further bodies of a technical, cultural or recreational character or for student welfare.

Each university or individual institute of higher learning has a Council of Trustees entrusted with inspection of its economic and financial affairs. Its members include staff of the university or institute itself, with representatives of the community and of the Ministry of Education and Culture making up one-third of the total. The executive management of the universities and university units is the responsibility of the rector and the director respectively. These are appointed for four years by the President of the Republic.

The following are the types of courses which may be offered in universities and detached institutes of higher education: first-degree courses—open to those who have completed the course of secondary education or the equivalent and have been accepted after sitting the entrance examination; post-graduate courses open to those who have obtained a first degree and who meet the further conditions laid down for the specific course; specialization and further training courses—open to those holding a first degree or able to show diplomas of equivalent value; extension courses—open to candidates able to meet the requirements laid down.

Apart from the courses corresponding to the professions regulated by law, it is permissible to organize courses to meet the demands of the labour market of the region or the specific programming requirements of university units.

Post-graduate courses, co-ordinated by Regional Post-Graduate Centres, are being organized to meet the following objectives: (a) to train teachers for the expansion of the system of higher education and to ensure a raising of present quality standards; (b) to stimulate the development of scientific research by adequate training of research workers; (c) to provide training for high-grade technicians to meet the requirements of national development; (d) to create conditions favourable to scientific work so as to encourage Brazilian scientists to remain in the country or to return from abroad.

Teaching resources in higher education

The categories of teachers are titular professor, associate professor and assistant professor. Beginners in institutions of higher learning are admitted as teaching auxiliaries on probation for an initial period of two years. After four years an auxiliary is obliged to complete a post-graduate course, otherwise he is not permitted to continue.

Titular and assistant professors' posts are filled by public competitive examination and presentation of diplomas. Associate professors' posts are filled after a publicly advertised examination of diplomas to be presented.

Teaching staff work either full-time—when they are prohibited from occupying any other post, except where this is linked to their own work or to their teaching and research—or for a clearly defined number of hours per week.

The usual length of an academic career is thirty-five years and staff may apply to retire after this time. Retirement is also the rule in cases of disability and is compulsory when a member of staff reaches the age of 70.

The financing of education

In addition to the specific vote in the Union budget, the Federal Government has taken steps to increase the amount of funds for higher education with a view to its growth and expansion. Among these are tax incentives to encourage education, providing for the allocation of two per cent of the income tax paid by individuals or firms to educational programmes, credit being arranged for the National Fund for the Development of Education. Likewise, the National Institute for the Development of Education and Research was set up in 1968 with the objective of 'collecting funds and channelling them to the financing of educational and research projects, including school meals and scholarships, in observance of the directives of national planning for education'.

With a view to increasing the number of students, the Federal Government is allotting extra financial aid to establishments covering the fields of health, technology and the production of secondary school teachers, and concentrating on those courses where applications have exceeded the number of places available.

3. Criteria for admission to the university

Selection for first-degree courses is made in two stages: general selection, by means of the entrance examination, for the appropriate field of study; and then the specific selection which goes on throughout the preliminary course, to decide on admission to vocational courses. The basic parts of the courses in each field have been unified to form the preliminary course, lasting two semesters.

A new list of subjects has been worked out for the entrance examination, as well as the corresponding curricula, and the list is the same for all the fields of study. The subjects figuring on the list are weighted, so that the importance of each varies from one field of study to another (Table 1).

Candidates for the arts field have also to take an artistic aptitude test, which may disqualify them.

The examination papers test mental attitudes and familiarity with methods and principles, and they call for a minimum of committing to memory.

As a result of the entrance examination now being standardized, the many examination coaching courses have lost their advantages. The chief endeavour now is to test the candidates' intellectual attitudes and ability. As a consequence, the coaching courses are being transformed into schools or they are becoming associated with private schools. And before long, this network of outside teaching may disappear.

Specific selection is based on the marks students obtain during the preliminary course and in specific papers taken at the end of it. What course the student will

TABLE 1. Weighting of subjects in the university entrance examination

University fields of study	Examination subjects, weighted						Total
	Natural sci. I inanimate	Natural sci. II animate	Maths.	Human sci.	Portuguese	Mod. lang.	
Mathematics and physical sciences	2.5	2.0	3.0	1.5	2.0	1.0	12
Biology and allied sciences	2.5	3.0	2.0	1.5	2.0	1.0	12
Science of human and social activities	1.0	1.5	2.0	3.0	3.0	1.5	12
Letters	1.0	1.0	1.5	2.5	3.0	3.0	12
Arts	1.0	1.0	1.5	3.0	3.0	2.5	12

eventually specialize in will be decided by his position on the final marks-list, taking into consideration the options he declared when registering for specific selection. Indeed, priority is given to the student's choice over his position on the final class-list. It is hoped that this device will reduce the number of drop-outs from courses which corresponded to students' third or fourth option.

Career-choice is now being made at the age of 20 or thereabouts and students can count on the assistance of the Orientation Division, which operates throughout the period of the preliminary course, enabling them to make choices matching their interests and intellectual capacities. The Orientation Division continues to face the old problem of students' preferences being concentrated on a small number of courses enjoying traditional social prestige, such as medicine, civil engineering and law. The university is thinking of bringing the number of places offered for each vocational course into line with requirements of regional development and of the labour market, instead of fixing the number of places according to the teaching capacity of the schools, as was done in the past.

Apart from the Selection and Orientation Divisions, the university has an Evaluation Division, among whose duties is that of the continuous analysis of the methods and implications of the selection procedure in its various forms.

4. *The demand for higher education*

Over the university's twenty-five years of existence, from 1946 to 1970, nearly 59,000 students applied for admission to its courses by taking the entrance examination. Of these, about 21,000 were admitted. The demand has risen sharply from 683 in 1946 to 2,000 in 1962, and to nearly 10,000 in 1972. Fifty-five per cent of these applications were concentrated in the last five years of the period. But the number of students the university can admit has not been able to keep pace with

the rate of applications. In 1946, 41 per cent of the demand was unsatisfied; in 1970, 69 per cent.

The demand for university places is dependent on the numbers of those completing their secondary school courses, especially in the lycée-type school (Table 2).

TABLE 2. Breakdown of numbers completing secondary education and applications for university education in Bahia in 1968 (percentages)

	Standard stream	Lycée-type	Commercial
Percentage of total completing secondary education	41.6	34.8	23.1
Candidates for university	22.0	62.0	6.5

But it is to be noted that in 1969, out of the 2,900 unsuccessful candidates, only 26 per cent were from the lycée-type schools. It seems to be the case that a significant proportion of the entrance-examination candidates, particularly in the case of those for scientific and classical courses, make two, three, and even four attempts to get into the university and that each year these 'persistent' candidates swell the prevailing demand.

Demand by field of study and courses

The breakdown by fields of study of the applicants over twenty-five years (1946-70) shows that around 40 per cent were seeking to enter the field of biology and allied sciences, 32 per cent the field of philosophy, humanities and social sciences (SHSA) and 23 per cent the field of mathematics and physical sciences. The remaining five per cent were divided between letters (3 per cent) and arts (2 per cent) (Table 3).

TABLE 3. Breakdown of applications and admissions, 1946-70

Field of study	No. of candidates	Percentage	No. of admissions	Percentage
I. Maths & physical sciences	13 345	23	4 384	21
II. Biology & allied sciences	23 354	40	7 707	37
III. Philosophy & SHSA	19 019	32	6 777	32
IV. Letters	1 723	3	939	5
V. Arts	1 352	2	1 064	5
Total	58 793	100	20 871	100

SOURCE Planning Office, UFBA

Looking, however, at the twenty-five years in five-year periods, we find a tendency for the number of applicants for field III to take over a bigger share of the total, rising from approximately 20 per cent of applicants in the first period to about 39 per cent in the last five years under review.

Field II presents the opposite trend, falling from 52 to 36.6 per cent.

In the period 1946-50, 85 per cent of those seeking to enter the university were concentrated in the block of 'traditional' courses comprising engineering, law, medicine, dentistry, letters, pharmacy, and economics and accounting; but this had fallen to 58 per cent in 1961-65. Even so, more than half the candidates were seeking to enter the traditional careers.

It can also be shown that almost 90 per cent of the candidates are seeking to take only about twenty-five courses, whereas UFBA offers places in more than forty.

Furthermore, half of these candidates are interested in only four courses—the first four of the 'traditional' courses—while the lead of medicine over any other subject is striking, amounting to 23.4 per cent of all candidates.

Such has been the demand for courses. The supply of places, reflecting satisfied demand, takes on a different aspect.

The 'traditional' courses, during the twenty-five years under review, took in about 55 per cent of the candidates. Developments over the same period, analysed by comparison of five-year periods, reveal a tendency for the 'traditional' courses to enjoy a diminishing percentage share: 86 per cent in the first five years to 44 per cent in the final five-year period.

In terms of numbers, a gap can be seen between the demand for courses, as revealed by the stated preferences of students wishing to enter the university, and the supply of places by courses.

This gap is the result of a combination of various factors: a lack of information about conditions on the market; the changing demand for higher-grade labour; and the influences of the family and the social group to which the student belongs. (This is a matter which requires further analysis.) Also the organization of secondary education does not respond readily to the demands of changing socio-economic conditions, preparing students as it does, not for the world of work, but rather for admission to the university.

Students' preferences in recent years and forecast for 1972

After this analysis of the historical development of the demand for places in the various fields of study and courses offered by the university, one can examine more specifically what have been the preferences in the entrance examination in recent years and, what is more important, in view of the introduction in 1971 of the preliminary course, how these preferences are modified after the student's entry into the university.

The preferences of candidates have recently been as follows:

- (a) The following courses show a clearly rising curve of demand: administration, medicine, philosophy, economics, dentistry and dancing;
- (b) The following courses show a clearly declining curve of demand: geography,

biology, agronomy, social sciences, law, chemistry, veterinary medicine, theatre and music;

- (c) Demand for the following courses has recently been showing a rate of growth above the general average for the university: dentistry, nutrition, administration, philosophy, data processing, geology, drawing and plastic arts, physics, medicine, economics, history, engineering (other than civil), communications and dancing;
- (d) Candidates' demand for the following courses has been growing at less than the average rate: letters, librarianship, nursing and mathematics.

Comparing the preferences stated by those who passed the 1971 entrance examination with their final options at the time of specific selection, it may be seen that:

- (a) The following courses gained adherents after the preliminary course: data processing, geology, civil engineering, architecture, biochemistry, pharmacy, dentistry and accounting;
- (b) The following courses remained stable: mathematics and nursing.
- (c) All remaining courses lost adherents.

Finally, although the number of those knocking at the doors of the university has been growing at a high and constant rate, it is less certain that this will continue in view of the great changes already beginning to take place in secondary education. Everything indicates that this will cease to be an avenue with an exit only to higher education.

Also, it can be said that while the region still needs large numbers of professional men with higher-level training, it is not certain that its labour market will be able to remunerate them all at rates compatible with the high cost of training them.

The highest echelons guiding the national education programme have repeatedly said that 'what is graver than a surplus at the doors of the university is a surplus of graduates'.

It has also been said that 'concern for quality is now the keynote in the country's higher education, not concern for numbers', and this is also indicative of the reversal of priorities to be seen at the present time.

5. The output and employment of graduates

Until 1965 the output of graduates from the university was characterized by a predominance of the eight traditional professions: engineering, law, medicine, dentistry, pharmacy, letters, economics and accounting, and architecture. Though these still account for 71 per cent of the output, other professions are now steadily gaining in popularity; up to 1965, eight professions accounted for 81 per cent of the total output, while by 1970, sixteen professions made up 79 per cent of the total. To put it in other terms, those courses which the university offered at the beginning now account for less than half of the students graduating.

Looking at particular professions and fields, up to 1960 the training of civil engineers bulked largest, this being linked to a regional economy connected with primary industry and exporting, covering industries of a traditional type.

From the middle sixties, however, industrialization began to assume importance

in Bahia with investment being made in growth industries, particularly chemicals, petrochemicals and metal-working. This led to changes in the demand for courses in this field and a diversification of output of graduates towards architecture, mathematics, chemical and electrical engineering, and geology.

The field comprising philosophy, humanities and social sciences is the one which has increased its share of university graduate output most: 21 per cent in the period 1946-50 to 34 per cent in the period 1966-70. In the opening period this field was mainly concerned with the training of lawyers, but since 1960 the market for some of the professions which this field leads to grew in importance. The understanding of economic and social problems and of the role of the state's civil service in tackling them led to fundamental changes in the demand for graduates in humanities and social sciences, economics and administration (both business and public).

The education course also developed in the period 1966-70, with the growing awareness of the importance of education in regional development. At the same time, the state government has been broadening the educational infrastructure in the primary and secondary sectors and has particularly increased the number of posts for directors and supervisors of education.

Finally, in the field of biology and allied sciences, the most striking growth has been in nursing and natural history.

The labour market for nine main professions

The Planning Office of the university recently undertook an investigation by questionnaire into the labour market for graduates in relation to the nine main professions of lawyer, business manager, civil servant, accountant, economist, civil engineer, electrical engineer, chemical engineer and dentist. The questionnaires were completed by about 500 graduates who left the university between 1956 and 1969. The sample was selected so as to cover the market's employment of graduates during two stages of the state's economy: as it passed from the period of concentration on primary industry and exporting to that of industrialization, which in turn brought about a complete reorganization of the state's civil service, and a demand in the public sector for a new type of graduate, especially economists, administrators and engineers.

The results show that about 87 per cent of these graduates are following the professions for which they were trained, 24 per cent are in public service, 19 per cent in private enterprise, 38 per cent are self-employed and 3 per cent are unemployed. The following are some of the individual findings:

- (a) It is among the lawyers that the highest proportion of graduates outside their profession is found, with 19 per cent; the proportion of unemployed is high, at 5 per cent.
- (b) Among dentistry graduates, 85 per cent are using their trained profession, the great majority self-employed (74 per cent); it is among the dentists that the highest rate of unemployment is found, at 6 per cent.

- (c) Of the accountants, 57 per cent are self-employed, and a high proportion (17 per cent) are not in their chosen profession, including 4 per cent unemployed.
- (d) The graduates in administration (public and private) show the highest degree of proper utilization by the market. Ninety-six per cent are in their chosen profession, 71 per cent with one single job. No cases of unemployment were encountered.
- (e) The proportion of economists outside their trained profession, as with the lawyers and accountants, is high (16 per cent).
- (f) Of the engineers, all the electrical and about 90 per cent of the civil and chemical engineers are following their chosen professions.

The market for higher-level graduates provides relative stability, with 61 per cent of them in jobs with clear contract-ties, 20 per cent of them being under the Statutes for Officials and 41.3 per cent under the consolidated labour laws. The worst situation as regards job-stability is that of the accountants, since only 17 per cent have clear contract-ties (as public officials), and 35 per cent of them are merely hiring out their services.

As for the salaries of graduates, the range is from Crs. 687 to Crs. 2,921, with an average of Crs. 1,924 per month.¹ Table 4 gives the average for each profession, and also the 'modal' salary (i.e. the usual salary in the greater number of cases, without counting the extremes of the range).

TABLE 4. Average salaries of graduates investigated—model salary bands of nine professions

Professions	Average monthly salary (Crs.)	Modal salary band (Crs.)
Dentists	687.00	601 to 1 200
Lawyers	1 190.00	1 201 to 2 000
Public officials	1 617.00	1 201 to 2 000
Economists	1 661.00	1 201 to 2 000
All graduates	1 924.00	1 201 to 2 000
Electrical engineers	2 138.00	1 201 to 2 000
Accountants	2 176.00	1 201 to 2 000
Chemical engineers	2 415.00	2 001 to 3 000
Business managers	2 509.00	2 001 to 3 000
Civil engineers	2 921.00	2 001 to 3 000

SOURCE Planning Office, UFBA

The following points emerge from an analysis of the survey:

- (a) It is the modal salary which best determines the 'market value' of a recent graduate and this is the salary he may normally hope to get.

1. The exchange rate in July 1972, i.e. at the time of the IIEP seminar, was U.S. \$1 = cruzeiros 5.88.

- (b) The possibility for graduates of climbing the ladder depends on the incidence of salaries above the modal level and therefore the difference between the modal salary band and the average salary.

On this criterion the market is best in the seven professions shown in Table 5.

TABLE 5. The seven professions with the best possibilities for graduates

Professions	Average modal salary (cruzeiros)	Average salary (cruzeiros)	Highest salary (cruzeiros)
Civil engineer	2 500	2 921	10 000
Business manager	2 500	2 509	8 000
Chemical engineer	2 200	2 415	6 000
Accountant	1 600	2 176	6 000
Electrical engineer	1 600	2 138	6 000
Economist	1 600	1 661	6 000
Public official	1 600	1 617	4 000

- (c) A proportion of the graduates are dissatisfied with the conditions of their job. Of all those interviewed, the majority (that is 62 per cent) declared themselves satisfied, those with the lowest rate of satisfaction being the dentists (at 43 per cent), the accountants (48 per cent), the lawyers (55 per cent) and the economists (56 per cent). The most satisfied with the profession they have chosen are the chemical engineers, the public officials and the business managers, in that order.

The most frequent grounds for dissatisfaction are salary, and not being able to work in the chosen profession.

Although the reply to this question cannot be considered a good market indicator, since a lot of 'satisfaction' is bound up with subjective factors, nonetheless it is interesting to see that the professions with the lowest degree of satisfaction are precisely those in which are to be found: (i) the lowest average salaries (dentists, lawyers and economists); (ii) the biggest proportions of graduates not working in their chosen professions (accountants, economists, lawyers and dentists); (iii) these combined with a high proportion of jobs without stable contract-ties (accountants, economists and lawyers).

Further information collected about two other key professions

There are two other key professions for which there was some information available: doctors and geologists.

While the number of doctors graduating has gone up, the total number and distribution of jobs in relation to the total supply of doctors is not favourable. More than 67 per cent of the doctors registered in the State of Bahia work in

Salvador, the capital city; here the ratio of doctors to inhabitants is 1/575, but in the state as a whole it is about 1/3,000. This means that opportunities and salaries in Salvador are now poor (54 per cent of doctors receive less than Crs. 1,000; 81 per cent receive Crs. 1,800 or less).¹ And yet the communities in the interior of the state, which are seriously short of doctors, lack the means of attracting them. Some of these present a ratio of doctors to inhabitants of over 1/9,000.

As for geologists, an investigation by the university's Human Resources Programme Unit found that the employment of geologists in Bahia is closely connected with the oil business: 65 per cent of them are concerned with oil-industry geology; 9.5 per cent are carrying out research at the university; 8 per cent are on geological mapping; and 6.5 per cent are concerned with mineral exploration—these sectors covering 89 per cent of those interviewed. It is clear that the trend towards a monopoly by Petrobras leaves the market with little diversification and it is greatly dependent for its future on the growth of one single firm. It appears that the average salary is in the region of Crs. 2,635 and that the modal salary lies between Crs. 2,000 and Crs. 3,000, with practically 45 per cent of those concerned covered by that band. And generally speaking, geologists are satisfied in their jobs, but there is a feeling that the labour market is at saturation point.

6. Planning the number of places in the courses offered

The criteria and factors which have to be taken into consideration when fixing the number of places to be offered at the university are both external and internal. The external influences include such major factors as the socio-economic requirements for the human resources which the university can train, the demands of the regional market and the individual desires and preferences of students. These were considered in the previous chapters. The internal factors are essentially the limitations of the university's resources—human, material and financial—together with its level of administrative ability in maximizing the rational use of those resources. Then consideration has to be given to the relative costs of each sphere of training, with a comparison of the productivity of the available resources when applied to various objectives, and the degree of mobility of the available teaching resources, both human and material.

The present capacity of the university is 13,152 students, 1,300 teaching staff and 2,500 non-teaching staff. Over the past five years the number of registrations went up at an average annual growth of 19 per cent while the funds available (discounting inflation) rose by 10 per cent on average. Indeed, between 1970 and 1971, the number of registered students rose by 21 per cent while the funds went up by only 7.6 per cent; and the advance budget of the university for the next three years has laid down a rate of growth no higher than 6 per cent per year, except for staff. (In these last figures, the decline in the value of money is taken into consideration.)

1. These data refer to salaries (employment in public or private organizations), not to total income (i.e. including self-employment).

Compared to the other Brazilian federal universities, Bahia has one of the highest levels of productivity (253 students per year per million cruzeiros, compared to 106 students at Brazilia and no more than 182 students elsewhere).

These two sorts of comparison—in time and in space—are made here as a means of evaluating the university's actual performance in the use of its resources. And there seems to be little doubt that there will not be much more room for further expansion within the limits of the predictable resources, without a serious risk of loss in quality.

This being so, the number of registrations will have to be kept to the present figure—although the total number of students will still continue to grow, because the degrees granted will remain fewer than the admissions for about five years more.

Secondly, the university will need to redistribute places between various courses, in order to cope with the situation revealed in the previous chapters. The following redistribution, keeping to the same totals per field of study, were suggested by the Planning Office to the decision-making bodies of the university, as a first tentative experience in access planning:

In field I: (a) eliminating sixty places in architecture; (b) adding thirty in electrical engineering; (c) adding twenty in chemical engineering; (d) adding ten in mechanical engineering.

In field III: (a) eliminating fifty places in law; (b) adding twenty places in government; (c) adding thirty places in psychology.

All five courses for which an increased number of places was proposed had high unit costs which should trend downwards if there were more student places. No increase in academic staff was considered necessary, since what was proposed was basically a filling-out or levelling-up of groups, mainly in first-degree courses.

A different order of problem exists in the field of biology. In this subject one finds a degree of preference for one single course which is quite abnormal; moreover, a large proportion of the students opting for biology did not put down a second option at all. First investigation already points to an oversupply of doctors in Salvador and the rest of the state still does not attract graduates in this field. Consequently, something has to be done now to create other alternative professional options likely to influence students interested in this field of study. There will then have to be an exhaustive and very well planned campaign of information and orientation if the results aimed at are to be achieved.

The field of arts merits separate treatment, for the total demand is well below the number of places offered. The university must of course, meet the costs of this contribution to culture, but it is perhaps becoming difficult to justify keeping on regular first-degree courses for such numbers of candidates and at such a high unit cost (especially in music and theatre). Perhaps a condition of offering these courses should be that a certain minimum number of interested candidates come forward.

Final comment

The higher deliberative bodies of the university proved very receptive to the criteria

put forward by the Planning Office for fixing the number of places for students. The total number of places offered remained unchanged and an internal reshuffle was carried out. Most important, however, it appears that a fundamental change of attitude has actually taken place in the university. It has been demonstrated that the number of places can be decided on a basis of objective criteria, and even if this has only been done once, it is now hardly possible for the university to turn back.

C. Access to the Autonomous National University of Nicaragua and employment of graduates

by M. E. Vijil Ycaza,

Director of the Planning Office at the

Autonomous National University of Nicaragua

1. *The Autonomous National University of Nicaragua*

The university developed from the 'Seminario Conciliar' or 'Collegio Tridentino' founded in 1670, which in 1812 was raised to the status of a university. Finally, in 1958, the university was granted financial, administrative and teaching autonomy by executive decree. Located on three separate campuses—one in the city of Leon, the former colonial capital; another in Managua, the capital of Nicaragua; and the third one in Jinotepe, the chief town of the Carazo Department—the Autonomous National University of Nicaragua (UNAN) is the leading higher educational institution in the country, with a total enrolment of 6,016 students in 1971/72. The official seat of the university is at Leon.

Of the eight faculties of the university as a whole, the Faculties of Medical Science, Jurisprudence and Social Science, Chemical Science, Odontology are located on the Leon campus; the Faculties of Physical-Mathematical Sciences, Economic Science and Humanities are located on the Managua campus, which is called the 'Ruben Dario' University Precinct. The Faculty of Arts and Science is located on both the campuses. The Jinotepe campus, which is called the Carazo Regional University Centre, offers a general studies course for the first-year students and extension courses for the local community on cultural subjects. Although at present the university mainly serves the western region of Nicaragua, it aims to reach the whole nation through its policy of establishing regional centres which are directly responsible to the University Board through the rector's office. Each centre is managed by a director, nominated by the University Board on the rector's proposal, who combines teaching and administrative functions. The Jinotepe campus is the first regional centre, established in 1967.

The supreme administrative authority is the University Board, consisting of the rector, who presides over it, the vice-rector, the deans of the eight faculties, a representative of the Ministry of Education, a representative of the students and the Secretary-General of the University. The rector is responsible for the administration of the university and appointment of administrative staff. Since 1958, the deans are elected by Faculty Councils of professors, students and representatives of the corresponding professional associations. The faculties are run by the deans

and a Governing Board of five additional members elected for a period of three years by the Faculty Councils and one student representative. The Faculty Governing Boards jointly elect the rector and the vice-rector for a period of four years. The General Assembly of the University, consisting of all the professors and a number of students' representatives, acts as an advisory board with the rector as president.

The university is linked with the central government through the Ministry of Education's representative on the University Board, who acts as a liaison between the government and the university. The Planning Office of the university has close links with the National Planning Office and the Planning Office of the Ministry of Education.

The enrolment of the university has increased very fast during the period 1960-70 at an average annual growth rate of 14.9 per cent. The increase has been faster at the Managua campus (with an average annual growth rate of 18.9 per cent during the period 1965-70) than at the Leon campus, which had an average annual growth rate of 7.1 per cent during the period 1960-70. In 1971 out of a total of 6,016 students, 2,396 belonged to the Faculty of Science and Arts, 1,104 registered in the Faculty of Economic Science, 934 in the Faculty of Physical-Mathematical Sciences (engineering and architecture), 781 in humanities (training for intermediate education, social work and journalism), 307 in medicine, 257 in jurisprudence and social science, 119 in pharmacy and 114 were registered in the Faculty of Odontology. The Faculty of Arts and Science had the highest enrolment (39.8 per cent) because it offers a course of general studies to all first year students and science courses in chemistry, biology, physics and mathematics. The proportion of women students increased from 18.2 per cent of total enrolment in 1960 to 32.3 per cent in 1971. Ninety-seven point eight per cent of the students in UNAN are of Nicaraguan origin. Forty-six point six per cent of the enrolment comes from the Managua Department and 15.6 per cent from the Leon Department. The 1965 survey of family incomes reveals that 36.8 per cent of the enrolment comes from families with incomes under US\$ 3,000 a year.

The number of graduates rose from 60 in 1960 to 241 in 1970. The average annual growth rate of graduates during the period 1960-69 was 18 per cent, higher than that of enrolment. In the early years of the decade, the majority of the graduates came from the departments of medicine and law; in later years the majority came from teacher training for intermediate education. In the last three years, twenty graduates came from the pure science disciplines of chemistry and biology. The average number of drop-outs between the first year and the second year was 41.8 per cent during the period 1958-71. Of the total drop-out numbers 71 per cent gave up after the first year and 29 per cent in the later years.

The total number of academic staff has increased from 149 in 1960 to 343 in 1970, with an average annual growth rate of 9 per cent, which is less than that of enrolment. But the structure of the academic staff has changed remarkably during the same period to cope with the teaching load. There were only two full-time professors in 1960, three part-time professors, four regular professors under contract and 140 hourly professors. In 1970 the structure changed with eighty-

nine full-time, fifty-eight part-time, twenty-nine regular professors under contract and 167 hourly professors.

The full-time teaching staff works forty hours weekly and cannot undertake professional work outside the university without special permission, while part-time teaching staff have a twenty-hour working week. The regular teaching staff under contract are recruited to give special courses and are better paid than the hourly teaching staff who receive remuneration according to the total hours of teaching put in each month.

The main source of financial support of the university is the Government which provides 81 per cent of the income; student fees provide 16 per cent, and the rest comes from other organizations and miscellaneous sources. Sixty per cent of the total expenditure goes to university teaching.

At the beginning of 1965, the UNAN University Board established the University Planning Commission to formulate short, medium and long-term plans and programmes for the development of the university. This consists of the rector (as chairman), the Director of the Planning Office, which is the Technical Secretariat of the Commission, and five professors chosen by the rector, and a student representative. The Planning Office has three sections: the physical planning section, concerned with the physical development of the university; the administrative planning section, concerned with internal administration and preparation of financial proposals for external credits; and the academic planning section, concerned with curriculum and course planning and statistical studies related to university enrolment. The projection of the university enrolment, excluding the Carazo campus, for the period 1971 to 1980 shows that in 1975 enrolment will exceed 10,000 and by 1980 it will reach 21,700. In 1980 the Leon campus will have 3,100 students and the Managua campus 18,600. The projection has been based on past trends. The 1966-72 Development Plan for the University adopted sixteen priority aims for the university. The following seven are relevant to the problem of access and employment of graduates:

- (a) Take steps to ensure that, during the ten-year period 1966-75, a total of 5,540 professional scientists and technicians are trained, holding the qualifications required by the needs of the country and the demands of national economic and social development plans;
- (b) Establish the scientific and technological courses required to satisfy the demands of higher education and national development;
- (c) Provide places for the 6,735 university students expected in 1972;
- (d) Renovate the university's academic structure;
- (e) Introduce programmes of general studies co-ordinated with vocational training programmes;
- (f) Expand the stock of teaching staff to the maximum, by appointing, training and developing teachers, and encourage the university teaching staff, with appropriate incentives including improved financial provision and the introduction of teacher-training courses;
- (g) Improve student welfare services by developing the system of student guidance, medical services, scholarships, and other forms of assistance.

It can be seen from the above objectives that although the national economic and development plan never became mandatory, the university attempted to go ahead and make efforts to meet the manpower needs of the country. That is why this case study has been undertaken at UNAN.

2. The higher education system in Nicaragua and its relation with the national social and economic structure

Nicaragua is situated in the great continental isthmus joining North and South America. It has the largest area (130,000 square km.) of all Central American countries and the lowest population density (thirteen people per square km.). The May 1963 census recorded a population of 1.5 million, which increased at an average annual growth rate of 3 per cent during the period 1950-63. The General Statistics and Census Department forecast a population of 2.2 million for 1980. The 1963 census reveals that 59 per cent of the population lived in villages at that time. It also reveals that out of 177, 292 persons in the age group 19-25 (university age) 5,069 or 2.9 per cent were attending school or college.

The economy of Nicaragua is mainly based on agricultural production, which: accounts for over one-quarter of the GPD; provides employment for over half the labour force; satisfies practically the whole domestic demand for food; and contributes nearly two-thirds of the total value of exports. The gross domestic product increased at an average annual rate of 4.8 per cent and GDP *per capita* at only 1.1 per cent during 1966-69, the balance being absorbed by the increase in population. Broken down according to sectors, the average annual growth of GDP for primary production was 0.6 per cent, for secondary 9.8 per cent and for tertiary 4.7 per cent.

The estimated percentage of GDP allotted to education increased from 3.3 per cent in 1966 to 4.3 per cent in 1969. The total investment in higher education which includes appropriations from the general budget of the republic and other sources increased from \$1.86 million in 1966 to \$2.7 million in 1969. These represent 0.3 and 0.4 per cent of the GPD respectively. Investment in higher education as a percentage of the national budget increased from 1.2 per cent in 1966 to 1.8 per cent in 1969, whereas that for all education increased slightly from 8.2 per cent 1966 to 8.8 per cent in 1971.

The national system of higher education comprises all the institutions which require a candidate applying for admission to hold a certificate of secondary education. These form two groups: the first includes those at university level, e.g. UNAN, the National School of Agriculture and Cattle-farming, the National School of Nursing, the Central American University and the Nicaragua Polytechnic Institute. The first three are state-run and the last two private. The second group has less stringent conditions for admission of students. Special mention should be made of the Central American Institute of Business Management (INCAE) which offers a specialists' course in business management for university graduates. The higher educational institutions of university level, with the exception of the

National School of Nursing, have formed a voluntary association called the 'Nicaragua Association of Higher Educational Institutions' (ANIES) which aims to co-ordinate work, avoid duplication of programmes and maintain relations with the different elements of the national educational system.

Very little information is available to assess the importance given by the Nicaraguan Government to higher education as an instrument for the economic, social and cultural development of the country. It can, however, be said that the educational sector has not received the same financial support as others, and within the education sector, higher education has received less support than primary or secondary education. The government does not have a national economic plan nor a manpower plan. It is the universities who, through their own planning machinery, attempt to relate output with the needs of the country. But very little can be achieved through such machinery, except to try to find out some of the facts.

3. Access to the university

In spite of the fact that the constitution law governing the UNAN states that: 'The entrance examination shall be established in all schools of the university for the purposes of selection and vocational guidance, in the form specified in the statutes', the prevalent opinion among members of the university community is against the establishment of entrance examinations or quotas for the different disciplines. The students vigorously support the principle of 'democratization of education', in the sense of leaving the doors of the university open to society as a whole by facilitating access to all students wishing to enter, with no economic, social or even academic discrimination.

Although there is no denying the fact that some professions have reached saturation point, the students have always maintained that the university should promote admission of the largest possible number of young people, claiming that the possibility of acquiring higher education is a right of youth which should be honoured by the state institutions.

Many university professors are against the establishment of entrance examinations for various reasons, the one most generally advanced being that entrance examinations do not always reveal the student's real ability and capacity; and if more emphasis is laid on the results of secondary education, this is a disadvantage to students of humbler origin, coming from schools which are relatively ill-equipped from the educational standpoint. It is, and was, believed that an entrance examination would help to perpetuate the 'elitism' of the university by denying access to those young people who are capable of following university courses, but who, because of the unjust socio-economic and educational situation prevailing in the country, receive a second-class training. It would facilitate admission to the university of members of privileged classes who have hitherto enjoyed every possible means of obtaining a proper education for their children.

It was, however, possible to impose quotas for some disciplines and these will be discussed later.

- The university regulations lay down the following conditions for initial entry:
- (a) The candidate must hold the qualification stipulated in the regulations of the faculty concerned;
 - (b) He must pass the required medical examinations, to ensure that he is not suffering from an infectious disease or an infirmity which incapacitates him for the study or practice of the profession concerned;
 - (c) He must complete the required enrolment forms.

The qualification specified for all faculties and courses is the 'Bachiller' in Science and Arts, which is awarded in Nicaragua to all pupils successfully completing their secondary studies. Except in vocational schools, all pupils at intermediate level in Nicaragua can obtain this certificate; in addition, all pupils in teacher-training schools, commercial schools or agricultural schools can obtain the corresponding certificate of Qualified Primary School Teacher, 'Bachiller' in accounting, in commercial secretarial work or in agricultural science.

Enrolment for the educational science, journalism and social service courses is also open to pupils holding only the certificate of Qualified Primary School Teacher, and to Bachelors of Commercial Science for the National Accounting Course.

Students who have obtained their certificate of Intermediate Education in a foreign country must first get an attestation of equivalent standard from the Ministry of Public Education.

All candidates complying with the conditions stated above are allowed direct access to the national university to follow the one-year course of general studies in the Leon, Managua and Jinotepe centres. After successfully completing it, they can follow the corresponding professional training courses.

The only professional training courses which still receive students direct in their first year are the courses in civil engineering and architecture. Entry to the former is completely open although the candidates are required to pass tests of ability or suitability, with the object of encouraging them to opt for some other course if they prove to lack the required aptitude or propensity.

Admission quotas have been fixed at thirty students for architecture, fifty for medicine, twelve for technology and thirty for odontology. Students entering these three courses in the health sector are required to have satisfactorily completed the year of general studies on the science side and passed various psychometric tests of aptitude and inclination. Candidates for these courses must not be over 30 years old at the time of application. The candidates selected are those obtaining the highest ratings, taking into consideration their performance during the year of general studies, for which 75 per cent of the total marking is assigned, and the results of the psychometric and vocational tests, which account for the remaining 25 per cent.

If any of the candidates selected fails to enrol, the next on the list is allowed to take his place, to complete the quota fixed for each of the courses concerned.

The selection procedures for all these courses are applied by boards consisting of the professors of the respective faculties and staff of the Guidance Section of the Student Welfare Department. In addition, for the selection of students for courses

in medicine and medical technology, the boards include teaching staff from the School of Science and Arts where the one-year course of general studies is provided.

The following factors are likely to influence the process of students' choice of courses where quotas do not apply: (a) the student's vocational inclination; (b) the desire to secure a comfortable social and financial position; (c) the geographical distribution of the courses offered by the university—this geographical factor has greatly affected enrolments for the disciplines established in Leon, where part-time job opportunities are less than in Managua, capital of the republic and centre of the economic, political and intellectual life of the nation.

The general studies courses were introduced in the university mainly with the object of eliminating hard and fast divisions between the different professional fields and the excessive specialization which is such a traditional feature of Latin American universities. The aim is to give the students a wider view of science and the humanities and endow them with a more all-round training. One of the advantages is the opportunity given to students to choose their future profession more objectively—by coming into contact with different fields of study and qualified people, students are able to define their aspirations more clearly, especially since they are away from the influence of the family environment which is often a determining factor in the choice of profession. The university Student Welfare Department has instituted counselling programmes for first-year students run by professional psychologists. The programmes cover the assessment of abilities and inclinations by aptitude tests, the scale of rating being adjusted to Nicaraguan conditions.

Due to the expansion of secondary school education, from 18,000 in 1964 to 40,000 in 1968, and the policy of open admission to many faculties, enrolment in the university has grown quite fast. During the first few years of the university, the public health disciplines (consisting of medicine, odontology, pharmacy and medical technology) constituted more than 30 per cent of the total enrolment. But since 1961, social science has had the greatest enrolment, among whose disciplines the most popular are education, economics, civil engineering and business management. The least popular disciplines were physics and mathematics with only four and eight students respectively in 1971. Two thousand five hundred and eighty-eight students out of a total enrolment of 6,016 were admitted to the first-year class. In addition, 154 students were enrolled in short courses for which a pass in the secondary school is not obligatory. These courses are for middle-level technicians and offer new opportunities to students wishing to enter the university. The subjects are topography, building construction, sales and marketing techniques, radio-reporting and administration of primary schools.

Enrolments do not necessarily correspond to estimated requirements of human resources. Under the political and social structure of the country, governmental authorities have not assumed the responsibility of determining the number of people required to be trained at a higher level in order to satisfy the needs of the public and private sectors. Since there has been a shortage of university graduates because of earlier heavy restrictions to higher education, every graduate has found employment even though not in the field of his specialization. Until quite recently,

a large proportion of teachers employed in secondary education had taken university courses in law or pharmacy. A 1969 survey indicates that among the barristers officially admitted to their profession, one-fifth of the total number were wholly employed outside the legal profession, and nearly half of them combined legal practice with other activities.

The university meets professional training requirements by providing courses in various fields which are mainly determined by the following factors:

- (a) Tradition, which has influenced the supply of courses in medicine, law and pharmacy. Although, as mentioned above, the last two disciplines are over-producing, it is almost impossible, because of the university's administrative organization, to discontinue courses in these fields;
- (b) The force exerted by certain pressure groups. These groups consist of: (i) foreign-trained people who feel that the fields of their specialization are useful for the country; and (ii) people who think that they need to acquire a higher qualification to give them a good start in a professional capacity or to improve their social status by obtaining a degree;
- (c) Economic aids and incentives. These aids are received from agencies who desire to encourage the training of human resources in one particular field where shortage of manpower exists. This resulted in the initiation of the programmes of social work, and most of the scientific departments, namely chemistry, physics, biology and mathematics.

Since the formulation of the UNAN Development Plan in 1965 for the period 1966-72, the creation of the new disciplines has been subject to certain specific criteria determined by the country's requirements of human resources according to preliminary assessments made by the university. Even so, it was not possible to raise all the financial resources required to initiate new disciplines in accordance with the university's overall planning and it was invariably necessary to call upon foreign or international agencies for support. Naturally, by having a development plan to refer to, the university was able to turn down many proposals which did not correspond to the prescribed guidelines or the order of priorities of the required objectives. Thus, although there is no mandatory forward planning to refer to, there are some guidelines which enable the introduction of new disciplines to be contained within pre-agreed norms.

The two poles on which the university planning process turns are: (a) the need to create new disciplines to meet the country's requirements; and (b) the need to expand the physical capacity and teaching structure in anticipation of the expected future demand for places, which is done by extrapolating past trends and also by considering the expansion of the secondary school system (only 20.3 per cent of the age-group went to secondary school in 1968, and this is likely to increase fast). The university does not have any unit for planning the placement of its graduates. They simply enter the labour market to seek a remunerative position on their own account in the public or private sectors or they set up as independent practitioners of a liberal profession.

If the graduate does not find employment in his own profession (very likely for law and pharmacy), he joins the teaching profession where even now any

graduate can find a job. The problem, however, will be aggravated in coming years as a veritable explosion has occurred since 1968, both in the university enrolment and in the number of graduates. The university will be caught between two fires: (a) the need to regulate the number of graduates in accordance with the country's requirements; and (b) the demand for university places as a result of the constantly growing enrolment in the system of secondary education. The failure to assess the real demand for human resources may result in overproduction by the higher educational system, and an accelerated flow of graduates to the rich neighbouring countries of North America. As a result, Nicaragua might not only lose the investment made in the training of talent but will also be deprived of the contribution of its best citizens towards the country's economic and social development.

However, if in the future the open system of admission were modified, the university would have to overcome the following grave problems:

- (a) *Lack of information on manpower demand.* Qualitative and quantitative demand for human resources has been little explored. The only serious investigation was carried out by the Supreme Council of Central American Universities between 1964 and 1967 and this met many difficulties through lack of basic statistics. This problem can be solved only by close co-ordination between the different sectors of the national economy or an overall planning system which will measure not only demands but elaborate policies necessary to meet them. It would then be possible to supply data to the university to modify its admission system and also to secondary schools so as to avoid frustrating individual demands for higher education and wastage of resources.
- (b) *Lack of information on future demand for higher education.* The secondary school system is in a state of rapid expansion; new schools are being established each year, and since a high percentage (80 per cent) of children in the relevant age group have not, up to the present, attended secondary school, there is every reason to expect rapidly increasing numbers.

In these circumstances, it is difficult to apply the usual methods of determining future demand for university-level education.

- (c) *Lack of an administrative organization for planning and estimating manpower demand.* There is no state organization which takes responsibility for this work. In some cases, for example the public health sector, preliminary estimates have been drawn up of future requirements. In other cases, studies have been based on prospects of creating jobs, e.g. the study carried out in 1965 by the Nicaraguan branch of the Pan-American Health Organization.

Any attempt to satisfy social demand for higher education without assuring that the corresponding jobs are available will be a sterile effort; although these people are badly needed from the social standpoint, if they are unable to find suitable employment, the result will be a constant flow of emigration.

D. Access to the University of Malawi and the employment of graduates

by J. Jones,

Lecturer in Physics at Chancellor College, University of Malawi,
and D. H. Lamb

Senior Lecturer in Economics, Institute of Public Administration

1. *The University of Malawi*

The University of Malawi was established in the year 1965 with the following objectives in view:

- (a) The university should act as an integrating centre for all further and higher education in the country.
- (b) All students and staff in the colleges should feel themselves to be university students and staff, and comparative distinctions should be avoided at all costs between degree courses (a minimum of eight years' post-primary education is needed for a general science, arts or social science degree; nine years for a degree in agriculture or law, and even longer, including a period abroad, for professional qualifications in medicine, architecture, engineering, statistics and veterinary science) and diploma work (a minimum of seven years' post-primary education is needed to obtain a diploma at the university). This integration, it was hoped, would provide for easy mobility of staff and students within the university complex, and provide to staff and students on all campuses the resources of the university as a whole.
- (c) The curriculum emphasis should be in terms of the professional and economic needs of Malawi. Agriculture and education were considered to be of primary importance, as were 'those studies which promote self-knowledge and some understanding of human nature and of one's own society'. Psychology, philosophy and sociology were considered to be of great importance in this respect.
- (d) The development should be 'wisely utilitarian'. Diploma courses should be encouraged and enrolment in degree courses should be limited to numbers which could subsequently be usefully absorbed into the country's work force. A substantial amount of general education should be included in all technical and professional courses in order to increase adaptability. It should be emphasized that the needs of the country are not wholly material, and that the country needs graduates trained in history and philosophy, for example.
- (e) Adult and extra-mural education, environmental studies (as a co-ordinating element), drama and African studies were considered to be of importance in certain respects.

The enrolment of the University of Malawi rose from 508 in 1966/67 to 985 in 1970/71, with an average annual growth rate of 18 per cent. The enrolment for diploma work was 333 in 1966/67 and 611 in 1970/71, that for degree work was 175 in 1966/67 and 374 in 1970/71. During the same period academic staff increased from 85 to 155 with an average annual growth rate of 16.2 per cent. The number of diplomas awarded increased from 41 in 1967 to 172 in 1971; that for first degrees awarded increased from 50 in 1969 to 62 in 1971. Up to 1971, only three students had graduated with a higher degree. An analysis of the student output by disciplines shows that the university has emphasized teacher training, agriculture, business studies and engineering. The combined output in these four disciplines (diplomas included) is higher than the combined output in arts, social sciences and pure science.

The university is organized in five colleges: Bunda Agricultural College; the Institute of Public Administration; the Polytechnic; Soche Hill Teacher-training College; and the Chancellor College—each strongly identified with particular vocational and academic interests and four of the five offering courses at both degree and diploma level.

Bunda Agricultural College, the Institute of Public Administration, the Polytechnic and Soche Hill Teacher-training College were conceived, and in some cases already established, before the university was in people's minds. These institutions had evolved to remedy observed and intuitively felt manpower deficiencies in the country, and in this sense were utilitarian. With the decision to create a University of Malawi, by the integration of the four colleges already mentioned with a new institution giving general degrees (Chancellor College), the position was somewhat changed.

In order to maintain the unitary nature of the university as an educational organism, all subjects taught in the five colleges of the university are integrated within a single academic framework of Subject Boards, Group Boards and Senate. Similarly, the structure of degree course and diploma course curricula are established in the Degree and Diploma Committees of the Senate. Vocationally oriented diploma courses, offered at all colleges except Chancellor College, last three years; ordinary arts, science and social science degrees offered only at Chancellor College last four years; and 'professional' degrees in Law, Agriculture and Education last five years (although the B. Sc. agricultural course has now been reduced to four).

Entry to all courses depends on possession of the Cambridge Overseas School Certificate (COSC). Increasing competition for places means that in practice a First Division or very good Second Division School Certificate is a *sine qua non* for admission to all courses, although the required spread of subjects varies with the individual course or diploma.

Administrative control of the five colleges which are geographically separate—four within ten miles of each other in the city of Blantyre, and the fifth, the College of Agriculture, two hundred miles away near Lilongwe in the Central Region—has been achieved by means of an umbrella system, each college enjoying a large degree of autonomy but accountable for the efficiency of its administrative and

financial controls to the central university administration located in the University Office.

Being the only university in the country, the University of Malawi has the responsibility of localization of administrative and executive posts in the Government sector. It has also to meet the demand for highly skilled manpower from both the public and private sectors, not only at the top managerial and professional levels, but also at the middle management, supervisor and technician levels.

A number of studies have been made of this problem in Malawi. The university has also been aware of its responsibilities and has tried to evolve a selection system for its different disciplines to meet the manpower requirements of the country. The case study gives the evolution of the planning mechanism in the university and its colleges. It also describes the development of the selection system, and the different criteria for admission to the university.

2. The higher education system in Malawi and its relation with the social and economic structure

Malawi, a small landlocked country in South-eastern Africa, with much of its land area lying along the west and south shores of Lake Malawi, attained independent nationhood in July 1964. It has a total area of 45,747 square miles, over 9,000 of which is lake water.

It had an estimated population of 4.53 millions in 1970 with a density of 125 per square mile of land area. During the period 1964-70, government development strategy has initiated a transformation of the country's economic structure which has resulted in an increase of the GDP at an average annual rate of 5 per cent. Agriculture is the predominant sector of the economy, over 90 per cent of the population live in rural areas, 70 per cent of active males are involved in producing subsistence requirements. The percentage of government expenditure on education at 13.5 per cent in 1970 has not changed much since 1964, although the absolute amount of expenditure on education has more than doubled. Recurrent expenditure for university education as a percentage of total recurrent expenditure for education also remained the same at approximately 25 per cent. The development expenditure for education increased from 32.4 per cent in 1961 to 34.5 per cent in 1971. The entire university education system is government-financed. The provision for post-primary education in Malawi was almost miniscule before 1964. The government, therefore, had to give special attention to rapidly remedying high-level manpower deficiencies in the economy. This helped increase the output of the monetary sector by 56 per cent during the period 1964-70. The local supply of university graduates had been augmented by Malawians returning from studying abroad. The total number of graduates (with diplomas and degrees) increased from 135 in 1968 to 300 in 1971. Practically, none of the university's output of 540 graduates and diploma holders (excluding teachers) since 1967 has failed to find employment commensurate with their qualifications. Employment of university-qualified teachers has also been assured. Apart from actual vacancies, 50 per cent of filled

posts at middle and top levels of the private and public sectors are still held by expatriates. Localization of these posts has progressed slowly; 49.2 per cent of the filled posts in the senior Civil Service were held by Malawians in 1967, as against 59.6 per cent in 1970. The number of Malawians studying abroad has decreased from 561 in 1966 to 430 in 1970.

Malawi Government economic planning is based on a three-years' rolling public sector investment programme, the first of the three years being revised each year in the light of varying needs and changes in the expected level of both internal and external resources. The second and third years of each programme give forward indications of development expenditures anticipated by the capital spending of the current year.

As regards the relationship between the central Government and the higher education sector of the country, the Central Ministry of Education is the final arbiter on the allocation of funds and university-planning and development. The members of the provisional council of the university are appointed on the recommendation of the Minister of Education. The Finance Committee of the University Council also has a representative of the Ministry of Education. All senior staff appointments are subject to the approval of the Council. The Ministry of Education approves student admissions. Final lists of applicants being offered places are submitted to the Ministry each year by the university for this purpose.

The university is consulted about specific problems such as the exploration of the manpower situation in the country. It also receives drafts of tentative proposals related to manpower and educational planning and training, especially information related to university admission and training proposals.

3. Organization of access to the University of Malawi

A number of studies have been made on educational development in Malawi. The 'Johnson' report, which was published in 1964, observed that the manpower requirements of the country were urgent, and recommended that: (a) 200 students should be admitted to degree courses in 1965, with an increase of annual intake to 350-400 by 1970; (b) diploma work in agriculture, education for secondary teachers and administration should be mounted; and (c) intake to the university should be at the GCE 'O' level or its equivalent.¹

Overall, it can be seen from the figures given earlier that the educational development has been slower than was recommended. There has also been considerable shrinkage in the total numbers of enrolled students between the first and later years of a course due to drop-out, failure, and to some good students being sent

1. In England the General Certificate in Education is a national system of examinations, organized by a number of regional boards. The 'O' (Ordinary) level examination is normally taken at the age of 15, often in a wide number of subjects. Students intending to go on to higher education will then remain in secondary education for a further two years, when they will take the 'A' (Advanced) level examination, in a small number of subjects. Thus in England, entry to universities and, increasingly, to other institutions of higher education depends on performance in the 'A' level, with supplementary evidence derived from the 'O' level performance.

abroad. The structure of enrolment in different colleges has been more or less consistent with the needs of the economy, as is observed from the increasing percentage of students studying agriculture (a rise from 7 per cent in 1966 to 20 per cent in 1971), and an increased absolute enrolment in the Polytechnic. But there has been a decrease in the percentage of total enrolment in the latter (from 23 per cent in 1966 to 20 per cent in 1971), because of reduced expansion in physical resources.

The overall admission policy of the university has followed a direction which would produce generally educated personnel, at both degree and diploma levels who would prove themselves capable of a fair amount of professional adaptability, subject to the constraint that those subjects which are considered to be most relevant to Malawi's needs (e.g. agriculture, education, etc.) will be given priority. On this basis, an estimate of the country's needs for graduates up to 1980 was prepared following the Tinbergen-Bos model. It was estimated that total intake should rise from 100 in 1967 to 350 in 1976 to give a total enrolment of 273 in 1967 and 1,268 in 1976, which would turn out 85 graduates in 1971 and 297 graduates in 1980.

In practice, however, the turn-out has been smaller. In the Chancellor College, which offers liberal education, no conscious effort has been made to direct degree students into predetermined disciplines, because all of them will be absorbed in the labour market due to the considerable shortage of university graduates. However, this has not been the case with the diploma colleges where there are consultative committees composed of representatives from industry, the university and the Government, which supply most of the information on the employability of graduates and diploma-holders. Due to the grave shortage of teachers at secondary schools, much emphasis was laid on educating qualified teachers; at Soche Hill College, the number of diplomas awarded increased rapidly from three in 1962 to 35 in 1970. All but two of the students chose the teaching profession. The B. Ed. course added more recently has further augmented the output of graduates with teaching diplomas.

There is direct negotiation between the National Employers' Consultative Association (NECA) and the university in respect of the courses offered. A joint committee consisting of six university members, eight members from commerce and industry and three members from the Government was formed in 1968, to advise the Polytechnic. This committee has met nine times in two years to discuss admission policy, content of courses and the overall policy of the university. This committee and some other *ad hoc* committees have helped reduce the conflict between the university goals and the requirements of the potential employers of graduates of business studies, studies in Public Health Inspection, laboratory technicians' course and engineering technicians' course.

Although there is continuous feedback from employers, the university has slightly overproduced in the field of public health inspection. This has been due partly to lack of funds available for the development of the public health system.

The number of trained staff needed up to the end of 1973 in the field of agriculture has been estimated by the Agricultural Development Service of the Inter-

national Bank for Reconstruction and Development. The admission policy of the College of Agriculture has been based on these projections. A Consultative Committee on Agricultural Education has been in existence since 1966 with membership drawn from the university, Ministry of Natural Resources and the private sector to advise on the content of courses and its applicability to eventual employment requirements. Suggestions from the Agricultural Employers' Association have also been helpful. Government demand for agriculturalists exceeds the supply to a great extent.

No detailed planning was made to determine the requirement of numbers of law graduates from the Institute of Public Administration. Numbers enrolled being small, overproduction was unlikely. The situation was, however, different for the civil service course.

Although in 1969 all of the thirteen diploma-holders found jobs at Executive Officer level in the Government, in 1970 only four out of ten could find employment in the Government. The remainder moved to the private sector, or public enterprises. Immediately informal discussions started between the university and the Government for possible changes in the curriculum to provide flexibility in the choice of jobs. But then in 1971 not enough diploma-holders were available to fill the sixteen posts within the civil service. There is no consultative committee acting as a liaison between the institute and the Government. Planning for the required number and placement of diploma-holders is informal.

The evolution of the selection system

Prior to 1967, the selection of secondary-school leavers for different types of post-secondary education was being done without any co-ordination. As a result, for each candidate, the headmaster of each school had to fill up several application forms and to report on each student several times to different institutions.

The Consultative Committee on Education established, in August 1967, a working party to make suggestions for a better organization and procedure for selection of secondary-school leavers, mature students and others for further full-time education and training.

This working party met several times to discuss the stages to be followed in the selection mechanism. The following timetable was drawn up:

- | | |
|--|-----------|
| (a) List of courses available prepared; | June |
| (b) Application forms, headmasters' report forms and list of courses available to be printed by the Ministry of Education; | July |
| (c) Application forms, etc., sent out to schools by the Ministry of Education; | September |
| (d) Completed application forms and headmasters' reports returned in duplicate to the Ministry of Education; | November |
| (e) Ministry of Education sends one copy of the application and headmasters' report to the institution of first choice; | December |
| (f) Institution makes preparations for selection. | January |

- | | |
|---|-----------|
| (g) Cambridge Overseas School Certificate (COSC) results received by the Ministry of Education and sent to the institutions; | February |
| (h) Meeting of representatives of the Ministry, University and Commissioner for Training; | |
| (i) Preparation of lists and reserve lists; checking of lists for duplications and omissions; | March |
| (j) Selection lists are submitted to the Ministry of Education for approval; | |
| (k) Clearances issued by the Ministry of Education | |
| (l) Offers of places sent out by institutions, and list of offers sent to the Ministry for distribution to District Education Officers for display to all secondary schools, the Establishments Division, and to the Commissioner for Training. | April/May |
| (m) Offers close, and reserve list candidates are offered vacancies. | June/July |
| (n) University issues a list of registrations. | October |

The operation of the selection system

The selection of students for various courses within the University depends, at present, entirely upon the results gained by the candidate in the COSC examination; the headmaster's report is also considered in some cases. The COSC regulations are as follows:

- (a) Each candidate must take six or more subjects from among at least four groups.
- (b) Group 1: English language (compulsory)
 - Group 2: (General); English literature, bible knowledge, history, geography.
 - Group 3: Languages.
 - Group 4: Mathematical subjects.
 - Group 5: (Sciences); general science, additional general science, agricultural science, physics, chemistry, biology, physics with chemistry.
 - Group 6: Arts and crafts.
 - Group 7: (Technical and commercial); engineering science, surveying, geometrical and mechanical drawing, commercial studies, accounts, health science.
- (c) In order to obtain a certificate a candidate needs:
 - (i) A satisfactory general standard in the best six subjects (Division 3);
 - (ii) Either five passes and one credit (Division 1) or four passes and two credits (Division 2).
- (d) Performance in the examination is graded as follows:
 - Grades 1-2: distinction
 - Grades 3-6: credit
 - Grades 7-8: pass
 - Grade 9: fail

From the above regulations, it is easy to see that the best pupils, as judged by COSC results, are those with the best grades over the six best subjects.

Applications for university places are received some time *before* COSC results arrive from the Ministry of Education. These applications arrive together with a headmaster's report. This helps in some kind of preliminary choice. The university starts its selection procedure only after the selection of candidates for 'A' level training, which is done immediately after the results arrive. Within a few days, a series of meetings takes place between representatives of each of the five constituent university colleges with the Registrar as chairman. Before these meetings, each college (under the direction of its Principal) has made a selection of its quota of entrants, with a liberal number of reserves. During the meeting a preliminary choice of students for each of the colleges is made. If a candidate meets the entrance criteria for the college of his first choice, then he is automatically selected for that college. Candidates who have not reached the necessary standard for acceptance by the college of their first choice may still be selected by the college which they list as their second, third, or even fourth, preference. In some cases (usually when pupils enter only two or three out of their possible four choices) candidates may be offered a place at a college which they have not included in their list of preference.

During this first meeting substantially more candidates are chosen by the colleges than can actually be accommodated. The provisional list of students is then taken back to each of the colleges, and sorted out into a fairly firm list (plus reserves) and those who are not likely to be finally selected. A second joint meeting of college representatives is then held where students discarded by some colleges can be 'picked up' by others whose entrance requirements they satisfy. By the end of this meeting the choice of students has been more or less settled.

A third meeting is then held to look for any anomalies in the lists. This is a very necessary procedure, since in some cases it appears that candidates have been accepted before others whose COSC results appear substantially better. The apparent anomalies are usually easily explained (as for example when a candidate for an engineering diploma has failed maths), but some discrepancies are noted. Complaints arising from the system of selection are remarkably rare; when they do occur it is usually as a result of a complaint by an individual, to a Minister, Member of Parliament or Party official. In this case, the complaint is passed directly to the university, and an answer to the complaint is passed back, via the Ministry of Education, to the individual. So far, all complaints have been properly dealt with in terms of non-attainment of entrance requirements. The use of 'bad headmaster's report' in answers to complaints has been conscientiously avoided, since this could obviously lead to hostility and antagonism toward the individual.

The logistics of selection just described seem to work reasonably well, apart from the fact that the criteria for selection to the different colleges are often *not known in detail* by the applicants. (This is another aspect of the schools' lack of information about the university.) Although information on entrance requirements is circulated to schools, it would appear that many pupils (and teachers) are unaware of the full implications of subject choices.

In the past, requirements have been left deliberately vague so as not to exclude

large numbers of people. However, there is now a feeling that more specific statements are called for.

Selection criteria for different colleges

The criteria for the selection of students vary from college to college in the University of Malawi depending upon the scope of the subjects taught, the importance of the fields in the national context, and the type of institution.

Chancellor College

The admission to this college is based mainly on the COSC together with headmasters' reports on the candidates. Selection is competitive and since there are only 100 places available each year, there is a steady rise in the qualifications necessary to secure a place. A good spread of subjects is required, with an indication of special ability in some of the subjects taught at the college. Less weight is given to subjects not taught at the college, though these are not ignored. Some competence in mathematics is necessary for most of the subjects available in the degree courses, and although there is as yet no rigid requirement for entry, good results in maths and English are expected, with a total of at least five credits in a first or second division certificate. Students entering Chancellor College from 1972 onwards will be expected to have studied maths for at least four years in secondary school.

Those pupils who have less than some given aggregate score, which varies from year to year, are provisionally chosen. (The aggregate in 1971 was twenty-five points on the six best subjects.) Then the standard of performance in specific subjects is scrutinized in the following order of priority: (a) maths and English; (b) science subjects; (c) other subjects.

In this way, the number of selected candidates is reduced to about ninety. The remaining ten places are allocated to Civil Service scholars and external candidates. Each year, the Civil Service awards five scholarships to Chancellor College for mature students, from among its employees. Some of these may be accepted directly into the second year of the degree course if their academic record warrants it. Each year a substantial number of external candidates (who can be defined as non-Malawians plus those Malawians who have completed their secondary schooling some time previously) apply for entry to Chancellor College. The number of external candidates selected is left to the discretion of the Principal, within the restriction applied by the University Council that no more than 2 per cent of the total students within the university shall be non-Malawian. The criteria for external candidates are not rigid but are loosely, and necessarily rather intuitively, based on academic record and references.

Soche Hill College

This institution is the teacher-training college within the university. Three courses

are offered in the school: (a) Diploma course, which qualifies the students for teaching at the secondary schools up to Junior Certificate; (b) Bachelor of Education course—a two-year degree course for those who have successfully completed the diploma course; and (c) University Certificate of Education—a short, concentrated course for graduates from recognized universities run during the long vacations for candidates to qualify as secondary-school teachers.

Criteria for selection for the three above-mentioned courses are:

- (a) Diploma course: applicants are required to have a COSC or its equivalent, with good results in the subjects to be offered in the diploma course. (These are physical science, biology, maths, geography, English, history, French, arts and crafts. In addition, a home economics option is offered.)
- (b) Bachelor of Education course: applicants are selected from those students achieving a distinction or credit in the diploma course.
- (c) Graduate Certificate in Education: this course is open to graduates possessing a degree from a recognized university which includes:
 - (i) one subject taught at secondary school in Malawi, in the case of an honours degree;
 - (ii) two subjects taught at secondary schools in Malawi in the case of an ordinary or general degree (one of which was taken at degree level).

There is very little difficulty associated with the selection of candidates for the latter courses, since numbers are small, and all candidates are well-known to university staff.

The Polytechnic

The university exercises responsibility only for the university diploma courses in the Polytechnic. The diploma courses are offered in business studies, engineering, technical teaching and laboratory techniques, and health inspection. The selection criteria are different for different courses. The required standard of entry to courses for university diplomas is normally the possession of a good COSC or its equivalent with passes in English and maths plus three relevant credits. It is unlikely that a person with less than four credits and a COSC will be accepted for a diploma course.

The requirements stated above are frequently 'bent' if a sufficient number of applicants do not reach this level.

The first provisional selection of candidates is made by the Principal; the aggregate on COSC is used as a first criterion, subject to the condition that certain subjects have been passed. The specific passes required are as follows:

- (a) English, maths—all courses
- (b) Maths and preferably physics with chemistry—engineering
- (c) Preferably biology and/or physics with chemistry—laboratory techniques.

None of the conditions is rigidly adhered to, and the chief selection criterion is the aggregate score, provided that a reasonable spread of subjects has been obtained. The headmasters' reports are studied, mainly to know the students' character. Choice of institution is not considered to be important, since school leavers have little idea of what the different courses entail. After the preliminary list has been

compiled by the Principal it is passed to the heads of the relevant departments who attend subsequent selection meetings, and make the final choice of students for courses for which they are responsible.

Bunda College of Agriculture

The majority of students at Bunda follow a three-year diploma course in agriculture; a smaller number are engaged in a two-year degree programme after having followed two years of the degree course at Chancellor College. Selection into the degree course is dependent upon performance at Chancellor College during the first two years. Applicants are required to have taken the following subject combinations during these two years:

Year 1: physical science, biology, maths, English;

Year 2: chemistry, biology, maths, economics or human behaviour.

Students apply to Bunda during the third term of their second year, and final selections are made on the basis of their examination performances during this year. So far, available places at Bunda have been sufficient to meet the total demand from Chancellor College.

The section from the college Handbook referring to criteria for the selection of diploma students reads as follows:

'Applicants are required to have a good COSC or its equivalent. Credits in science subjects (general science or biology, and physics with chemistry) are particularly desirable, as are good results in English and maths. Performance in other subjects is also taken into account. Selection of students is not made on academic qualifications alone. Headmasters' reports and personal interviews, when possible, are also taken into consideration.'

The more specific requirements actually applied are that applicants must have at least a pass in English and maths (preferably a credit in maths) with a credit in at least one other science. Physics, chemistry, physics with chemistry, and biology are the science subjects which are particularly looked for. In actual fact, it is only with the 1971 entry that these requirements have been met 'across the board', and in this case it has been those students with the best COSC grades who have been accepted. No notice is taken of subjects such as health science, Chichewa and bible knowledge. Generally, in this college, headmasters' reports have not been found to be of great use. Next year, it is hoped that an interview will be able to be incorporated into the Bunda selection procedure. These interviews would have to be conducted by staff visiting secondary schools before COSC results are known.

The selection mechanism at Bunda starts with various departmental meetings, where a rough selection is accomplished. After this, a committee of departmental heads makes a more definite selection, and two representatives of this committee attend the joint university selection meetings.

Institute of Public Administration

A three-year diploma course is offered in the Institute of Public Administration to educate personnel for administrative posts. A three-year LL.B degree course

in law is also offered to a smaller number of students who have completed two years at any college of the University of Malawi.

The criterion for selection to the diploma course is 'a good COSC or its equivalent'. In practice, it is the students with the best COSC grades who are selected, and usually these students must have gained credits in English and maths. Non-academic achievement, as judged from headmasters' reports, is considered to be important and weight is given to this factor. In previous years, short-listed prospective candidates have always been interviewed; in 1971 it was not possible to hold these interviews owing to difficulties in timing. Preliminary and final selections are carried out by the Principal and Vice-principal.

The selection for the law degree course is made from among current university students at the end of their second year, and entry requirements are rather loose. Comfortable passing grades must have been attained in all subjects, and English is considered to be particularly important. So far almost all 'effective' applicants for the degree course have been able to be accommodated.

An analysis of the entrants of the different colleges reveals that there is a significant difference in the quality of entrants expressed by their COSC results. It is also observed that entrance standards have risen steadily during the last six years.

4. Evaluation of the selection system

The selection system is rigid in the sense that once a student has been enrolled in a particular discipline, it is difficult for him to change it. There are cases where the choice of subject has not been quite right. Some discussions are going on at the present moment to make the programmes a little more flexible.

The present system of selection is very quick and economic. However, the emphasis given on COSC results has not been validated so far. Their predictive validity is being tested now jointly by the university and the Regional Testing Centre for Malawi, Lesotho, Botswana and Swaziland.

A University Entrance Test is also being developed which might replace COSC. This is a combination of cognitive and attitude tests which was administered to every university entrant in October 1969 to compare its predictive validity for university performance with that of COSC. It was found that for Chancellor College:

- (a) In the great majority of cases, COSC results are not very good predictors of university performance;
- (b) Science subject results in COSC are, in some cases, reasonable predictors of success in university science subjects;
- (c) English results at COSC correlate positively, but not very significantly in most cases, with English results at university;
- (d) English (and other 'arts' subjects) are worthless as predictors of university science results;
- (e) Scores in science subjects at COSC are almost worthless as predictors of scores in University 'arts' subjects.

(f) COSC English correlates *negatively* (and in most cases significantly) with scores in university maths, and vice-versa.

After the research is completed, a superior selection instrument might be available.

A fault of the present system which could be easily rectified is the lack of knowledge which pupils and teachers possess about the 'relevance' of subjects taken for COSC. Subjects such as bible knowledge, health science, Chichewa, etc., are almost totally ignored by university personnel involved in selection.

Another problem is the lack of knowledge in schools of possible university courses and subsequent careers. Most of the colleges do not take serious notice of the pupils' preference for choice of courses, although the better pupils do get their first choice, in the absence of any other information.

A number of colleges involved with science courses look for good grades in the so-called 'hard' sciences (physics, chemistry, biology, physics with chemistry) rather than in general science. This fact is also not generally known in schools by those who are applying for university courses. Amplification of the sections in college handbooks concerned with entry regulations could do much to inform schools about the more specific criteria which are employed.

E. Access to Chiangmai University, Thailand, and the employment of graduates

by S. Yodindra,
Senior Staff Member, Department of Mathematics, Faculty of Science,
Chiangmai University

1. Chiangmai University—a case study

In 1960, the Council of Ministers of the Government of Thailand authorized the establishment of Chiangmai University. The Chiangmai University Decree was finalized on 15 January 1964, and the first academic activities began on 18 June 1964 in the Faculties of Humanities, Sciences and Social Sciences. In 1965 the Faculty of Medicine, part of the University of Medical Sciences in Bangkok, was incorporated into Chiangmai University's jurisdiction.

At present, there are nine faculties including the four mentioned above. The others are: the Faculties of Education, Engineering, Agriculture, Dentistry and Pharmacy. The university, which is located in Chiangmai City, 750 kilometres north of Bangkok, is under the jurisdiction of the Office of the Prime Minister and is co-ordinated and supervised by the National Council of Education. The university has the official status of a department under the Office of the Prime Minister. The Rector of the university is the head of the university administration, and his status is almost the same as that of the Director General of a department in a Government ministry.

The pattern of official work of the university is like that in the departments and the ministries, but in addition, the university has the University Council Board to control its policies and its activities.

According to the Chiangmai University Act 1968, the University Council Board is composed of the following members:

- (a) *Ex-officio members*: The Prime Minister (chairman); The Rector of the university; Dean of each faculty in the university; The Secretary-General of the National Council of Education.
- (b) *Members by appointment*: These members are appointed by Royal Proclamation with the recommendation of the Cabinet. Membership of this kind is for a period of two years, and the number of members is not less than four and not more than nine.

By the University Act, the functions and authorities of the University Council are to:

- (a) Lay down the university regulations:

- (b) Consider and approve the university curriculum for subsequent submission to and approval of the National Council of Education;
- (c) Seek ways to improve the university;
- (d) Approve the degrees, diplomas and certificates which will be granted by the university;
- (e) Propose the establishing, abolishing and combining of faculties, departments and institutes in the university;
- (f) Consider the incorporation of other institutes into the university;
- (g) Consider the appointment and dismissal of the Rector, Vice-rector, Dean, Director of the Institute, Head of Department, Professor, Associate Professor and Assistant Professor;
- (h) Lay down the financial and property regulations of the university;
- (i) Appoint the Suggestions Committee for the university.

The general organization of the university is shown in Figure 1.

The typical structure of a faculty in the university includes the Dean as its head with an Associate Dean in charge of academic affairs. Under the Dean, there is an undersecretary whose office co-ordinates the activities of the academic departments through the Heads of Departments.

Enrolment in Chiangmai increased very fast during the period 1965-71, at an average annual growth rate of 35 per cent from 1,040 in 1965 to 6,291 in 1971. Enrolments in humanities, social sciences and education make up 56 per cent of the total in 1971. The Faculty of Medicine is the largest faculty in the professional fields with an enrolment of 951. The most interesting aspect of the enrolment structure is that the number of female students in the university is greater than that of male students. Most of them are enrolled in the Faculties of Humanities, Education, Social Sciences and Medicine. The university has produced 3,190 graduates since its inception. Medicine was the field of study which produced the largest number. The expansion in enrolment has not, however, met with a corresponding expansion in good-quality teaching staff. Out of a total of 611 full-time teaching staff, only twenty-five had a doctorate degree in 1971. Among the 145 part-time teachers, thirty had a doctorate degree.

The government is the major financial source of support for the university, contributing about 98 per cent of the total expenditure. The rest comes from tuition fees, foreign aid and the private sector. Fifty per cent of the budget is for capital investment and the rest for running expenses. The annual budget of the university as a percentage of the budget of all universities has decreased from 23 per cent in 1965 to 16 per cent in 1971, although in absolute terms the budget has increased from 58 million baht¹ in 1965 to 102 million baht in 1971 at an average annual growth rate of 10 per cent. This is again much less than the growth rate of enrolment of 35 per cent. The relationship between the university and the local government is not very close at present and sometimes the university feels like an island in the midst of the local community.

1. The exchange rate in July 1972 was U.S.\$1 = 20.83 baht.

The university has set its 1976 targets for student enrolment, number of teaching staff by faculty, and for its financial needs; the target for total enrolment is 9,900; 1,304 for full-time teaching staff and the target budget is 180.61 million baht.

2. The higher education system in Thailand and its relation with the social and economic structure of the country

Thailand, one the Southeast Asian countries, is situated in the Indo-Chinese Peninsula. It has an area of 518,000 square kilometres and had a population of 34.4 million in 1970. The population increased at an approximate average annual rate of 3 per cent during the past ten years. The country had a population of 2,716,000 in the age-group 20-24 in 1966, which is expected to rise to 4,839,000 in 1981. About 1-2 per cent of the population in the university age-group have a chance to go on to higher education at present.

Agriculture is the backbone of the national economy: 29.5 per cent of the gross domestic product (GDP) in 1971 was from this sector. Industry, trade and services are the other major contributors with a total 43.7 per cent of GDP; 75.6 of the working population belong to the agricultural sector. There is a tremendous inequality in the distribution of income among the Thais; 48.4 per cent of the families in Thailand earn under 3,000 baht per year (U.S.\$142) whereas 5.6 per cent earn 18,000 baht or more per year. While 57 per cent of the lowest income-group families live in villages, the percentage is 74 in the northeast region of the country.

The average annual growth rate of GDP has been 4.9 per cent during 1967-71—a rise from 105.5 billion baht to 126.4 million baht. *Per capita* GDP has increased from 3,088.3 baht in 1967 to 3,527.7 baht in 1971 at an average annual growth rate of 3.5 per cent.

Thailand's second economic and social plan ended in 1971. The third plan started in 1972 with one of its objectives being to improve and increase the quality and quantity of human resources to meet the demand for trained personnel during the period of the plan. The largest demand is felt in the fields of medicine, science and technology. The Thai plans provide an estimated requirement of manpower for different fields, which guides the system of higher education in planning its own output so as to meet the requirement for highly skilled manpower.

Higher education in Thailand is offered in: (i) universities and colleges; (ii) teacher-training colleges; (iii) military and police academies; and (iv) technical institutes.

All of them belong to the Central Government and are under the jurisdiction of the Office of the Prime Minister, except for the College of Education which is under the Ministry of Education.

There were five universities in Thailand before World War II: (i) the Chulalongkorn University; (ii) the Thammasat University; (iii) the University of Medical Sciences; (iv) the Kasetsart University; and (v) the Silpakorn University.

Realizing the need to broaden the facilities for higher education to serve the rural areas and to speed up the training of high-level manpower in such important areas as medicine, engineering, agriculture and administration, four new universities were set up: the Chiangmai University in the north; the Khon Kaen University in the northeast; the Songklanakarin University in the south; and the National Institute of Development Administration in the capital city of Bangkok. All of these were established between 1964 and 1967.

In 1971 the Institute of Technology and the Technical Institute were combined to become the tenth university—the Chomkluaw University. An open university, namely Ramkhamhang University, was set up in 1971, similar to the one in the United Kingdom. The number of students enrolled in the universities increased from 26,823 in 1966 to 61,374 in 1971, with an average annual growth rate of 18 per cent. The number of degrees granted increased from 7,743 in 1966 to 8,013 in 1971, with an average annual growth rate of only 0.7 per cent. This low growth rate in the number of degrees is due to the fact that a number of part-time students at Thammasat University have been asked to leave because they exceeded the eight-year limit for graduation.

The National Council of the Economic and Development Plan, in their estimated requirements for manpower with different types of skills, found a shortage of 750 trained personnel in agriculture and animal husbandry, 420 in forestry and fishery, 900 in medical sciences, 2,000 in nursing, 310 in engineering, 10,000 each in the engineering trades and teacher training and 1,600 in science.

The planning of the system of higher education in Thailand was necessarily directed towards solving this shortage of manpower. The percentage of the national budget allocated to the universities has fluctuated from 1.94 per cent in 1965 to 2.15 per cent in 1970, with a peak at 3.96 per cent in 1968. The percentage of the GDP allocated to the universities has varied between 0.31 per cent in 1965 and 0.47 in 1968. These fluctuations have mainly been due to the transfer of emphasis from education to other sectors of the economy.

3. Planning access to Chiangmai University

Since the university system in Thailand is centralized, the policy of admission is the same for Chiangmai as that for other universities, except for the open university. The number of places available every year for each field of study in each university is decided by the National Council of Education with the co-operation of the universities under the supervision of the National Council of the Economic and Development Plan and the Budget Bureau on the basis of:

- (a) the availability of teaching staff and physical facilities;
- (b) the manpower needed for national development, which is checked by the National Council of the Economic and Development Plan;
- (c) the budget available for the field of study, which is supervised by the Budget Bureau.

The target enrolments for different faculties, including the Faculty of Graduate Students, for the period 1972-76 for Chiangmai University are given in Table 1.

TABLE 1. Target enrolments for the faculties of Chiangmai University, 1972-76

Faculty	1972	1973	1974	1975	1976
Humanities	325	350	350	400	400
Education	470	495	535	515	540
Social science	355	360	385	410	410
Sciences	320	340	360	380	400
Engineering	200	220	230	300	350
Agriculture	120	120	150	150	150
Medicine	120	120	120	120	120
Dentistry	40	45	50	50	50
Pharmacy	60	70	80	90	100
Med-Tech. ¹	40	45	50	55	60
Dip. in nursing ¹	90	90	100	100	100
Fine arts ¹	—	—	—	50	50
Graduate students ¹	105	105	105	105	105
Nursing ¹	50	50	60	60	60
Total	2 295	2 410	2 575	2 785	2 895

1. A new faculty is planned.

SOURCE Planning Section, Registrar's Office, C.M.U.

The Manpower Division of the National Economic Development Board (NEDB) estimates the manpower requirements for the plan periods. The estimates for the Second Plan period (1967-71) for personnel trained in different skills, with the anticipated shortages, are given in Table 2. It can be observed that the maximum shortage appears in the fields of engineering trades and teacher training.

TABLE 2. Manpower requirement and supply of graduates or vocational school leavers during the plan period, 1967-71

Personnel trained in	Manpower requirement	Supply	Anticipated shortage
Agriculture and animal husbandry	2 200	1 450	750
Forestry and fishery	900	480	420
Agriculture (vocational sch. level)	7 500	7 500	—
Medical sciences	2 250	1 350	900
Nursing	6 000	4 000	2 000
Engineering	2 200	1 890	310
Engineering trades (vocational sch. level)	45 000	35 000	10 000
Teacher training	49 000	39 000	10 000
Science	3 300	1 700	1 600

SOURCE Manpower Division, NEDB.

Admission to any university is decided on the basis of a national entrance examination which is also organized by the National Council of Education. Its sub-committee for the entrance examination consists of representatives from the universities and the Department of Secondary Education and formulates examination policy. Another sub-committee consisting of the faculty members of the universities works out the details of the examination activities—namely, preparing question papers, examining them, etc. The type of examination depends upon the field of study preferred by the applicant. An applicant can list six fields of study in order of preference. The entrance examination will therefore be different for different groups of fields of study listed by the applicants.

The total intake for Chiangmai University in any year is based on:

- (a) The annual budget sanctioned;
- (b) The priority of manpower requirements decided by the central government;
- (c) The number of teaching staff available in each field of study;
- (d) The results of the entrance examination; and
- (e) The cost per student in each field of study.

Prior to 1967, those applicants who wanted to study medicine were required to pass the entrance examination in the field of science. Since there was a limited enrolment in the field of medicine, quite a few applicants had to be rejected and were asked to enter the science sector, although they were not quite suitable for science and would not do as well. From 1967 the universities have had a separate entrance examination for the field of medicine.

This central system of entrance examination facilitates the transmission of information among secondary school graduates about the availability of places, subjects taught and other details for each of the universities. This avoids multiplication of admission activities both for the applicants and the universities, and it can help in the orientation of the secondary schools' curriculum and their examination system towards the changing needs of the society. Finally, it orientates the distribution of enrolment by different fields according to manpower needs as decided by the NEDB.

Admission to a university and a field of study is decided by the preference of the applicant, his performance in the entrance examination and in an interview organized by the university. If there are some applicants who cannot pass the entrance examination or cannot be admitted to a university for lack of a place, they are enrolled in the Ramkhamhang University, the open university, where a pass in the entrance examination is not obligatory. Therefore, in Thailand, anybody who has passed the secondary school examination and desires to have a higher education can do so.

In Chiangmai University, which offers courses in thirteen fields of study (considering medical technology, pharmacy, dentistry, nursing degree, nursing diploma and midwifery as different fields), enrolments in the first-year class in 1971 were as follows: science, 548; humanities, 275; social sciences, 290; education, 177; agriculture, 99; engineering, 53; and medicine, 317. The first-year class of medicine, including medical technology, pharmacy, dentistry and the nursing degree, is preceded by two years of study in the faculty of science. It appears that consider-

able emphasis will now have to be laid on engineering education, teacher training, agriculture and medicine (regular degree).

The National Council of Education in co-operation with the university always keeps the Government and the Ministry informed of the curriculum of each discipline. The graduates are usually informed of possible employment opportunities during the period of graduation. During the process of their studies, the students orient themselves professionally, particularly, in the final year of their course, through field work and practical work. All the senior students are required to have achieved a satisfactory performance in these activities before their graduation. Part of the course is concentrated on the subject matter which relates to the employment prospects of graduates. The field work and practical work for the field of medicine is practice in a hospital; in political science, it is work in a provincial office of the Government; in education, it is practice in a school or in an educational office. Such experience is supposed to be the first phase of their future employment. Although, at present, there is no advisory body in the university to deal with professional orientation, it is felt that the demand for graduates by employers influences access to the university and the curriculum.

The university does not have any mechanism for providing employment for its graduates. Frequently, the university invites representatives of government sectors, business and industry to participate in the teaching programme as part-time staff. It believes that such association helps to provide employment to students. The university feels that a unit of placement of graduates will be necessary in the future consisting of the admission office and representatives of business, government, industry and private organizations. Information on employment and the performance of graduates plays a very small part in formulating access policy at present.

4. Evaluation of the admission system and its relation with the job market

In Thailand, higher education is planned according to manpower needs. There is still a shortage of highly skilled manpower in the fields of science, education, agriculture, engineering and medicine. This is caused by:

- (a) lack of qualified teaching staff;
- (b) higher costs of education, especially in the field of agriculture, medical science and engineering, than in others.

The shortage exists mainly in the government sector, because demand exceeds supply and salaries of equally qualified graduates are lower in the government sector than in the private sector. The Government has therefore introduced a system of compulsory service for engineering and medical graduates for a certain period after graduation. For other disciplines, the Government provides scholarships for students on condition that they serve the Government for a period after graduation. This partly solves the problem of distribution of highly skilled manpower between the urban and rural sectors of the economy.

It appears that, if in the future there is a problem of unemployment of graduates in certain fields, as is expected from the rapid expansion of higher education, the following steps can be introduced in the university to rectify the problem:

- (a) Improvement and revision of the planning mechanism of admission to the university;
- (b) Revision of the curriculum to meet the changing needs of society;
- (c) Establishment of a unit of placement for graduates in the university with representatives from private and government sectors;
- (d) Establishment of professional workshops in various disciplines.

At present, statistics relating to the employment of graduates are not systematically recorded so as to develop indices necessary for planning access to the university. The manpower targets are the only basis. The situation could be improved in the future. The problem of lack of qualified personnel in the rural areas could be solved by:

- (a) Providing graduates employed in the rural area with higher salaries, and more privilege and prestige;
- (b) Limiting the number of professional licences in the cities for medicine, engineering, architecture and education;
- (c) Making experience in the rural area an additional requirement for obtaining a licence for a profession.

F. Access to the University of Malaya

by U.A. Aziz,
Vice-Chancellor and Professor of Economics, University of Malaya

1. The University of Malaya

The University of Malaya was established in January 1962. Historically the present university has its roots in the University of Malaya founded in Singapore in 1949 by amalgamating two colleges—the Raffles College established in 1929, teaching mainly arts and science subjects, and King Edward VII College of Medicine established in 1905, teaching medicine and dentistry. In 1959, following the independence of the Federation of Malaya in 1957, a division of the University of Malaya 'The University of Malaya in Kuala Lumpur' was established in the Federal capital and this finally became the University of Malaya as it is now known. The university is bound to support the beliefs and principles which have been laid down in the 'Rukunegara' (the fundamental national philosophy) which are: (a) to achieve greater unity of all the people of the country; (b) to maintain a democratic way of life; (c) to create a just society in which the wealth of the nation shall be equitably shared; (d) to ensure a liberal approach to the rich and diverse cultural traditions; and (e) to build a progressive society which shall be oriented to modern science and technology. These principles are also followed in formulating the admission policy of the university and in the employment of its graduates. The cultural programmes of the university are positively oriented towards promoting appreciation of the diverse cultures of the people of Malaysia.

The university has developed seven faculties: arts, economics and administration, agriculture, engineering, medicine, science and education

TABLE 1. Increases in student enrolments at the University of Malaya, 1965-71

	1965	1966	1971
Arts	1 424		3 577
Economics & administration		132	1 443
Agriculture	143		383
Engineering	277		500
Medicine	185		654
Science	535		1 436

Total student population has increased from 2,714 in 1965 to 8,544 in 1971. The growth of the number of academic staff has been much slower—a rise from 335 in 1965 to 722 in 1971. The student/teacher ratio has increased from 8.1:1 in 1965 to 11.8:1 in 1971. The greatest increase was in the Faculties of Arts, and Economics and Administration.

There is a system of committees to deal with the development of the university, and a council to deal with financial matters, appointments, promotions and other personnel matters. Its Senate, chaired by the Vice-chancellor, is concerned with academic affairs, admission of students, examinations, curricula, etc. The faculties co-ordinate the work of their respective departments or divisions under the aegis of a dean. The council has three standing committees: the Finance Committee deals with financial matters, playing a crucial budgetary role and thereby influencing important decisions on student admissions and staff recruitment; the Development Committee deals with physical construction plans; the Five-Year Development Plan Committee is concerned with the preparation of all requests for government grants to the university under the Second Malaysia Five-Year Plan.

Actual total expenditure of the university went up from 17 million Malaysian dollars¹ in 1967 to approximately 31 million Malaysian dollars in 1971. The government contribution has decreased from 90 per cent in 1967 to 80 per cent in 1971.

There is close co-ordination between government budgeting, economic planning authorities and university officials, and representatives from the Ministries of Education, Health and Finance sit on the University Council. They therefore play an active role in the decision-making of the university. The University of Malaya intends in future to concern itself mainly with the expansion of graduate studies in both the science and the arts streams, but this is currently at the preliminary planning stage. The university now has a total of 313 post-graduate students—152 in the science and 161 in the arts streams. At the moment there is no employment problem for graduates but this may develop in the future. However, the resources of the university are limited and already existing social demand is forcing the university to begin to draw on its reserves. There is definitely a need for planning admission to the different disciplines in accordance with the manpower needs of the country and the overall objectives of the university. This justifies the case study being undertaken at the university.

2. The higher education system of Malaysia and its relation with the social and economic structure of the country

Malaysia has a total area of 128,430 square miles. The country is divided into two parts: (1) West Malaysia with a total area of 50,700 square miles; and (2) East Malaysia which consists of two states lying on the northern part of the

1. The exchange rate in July 1972 was U.S.\$1 = M\$2.82.

island of Borneo, with a total area of 77,730 square miles. In 1970 Malaysia had a population of nearly 10.5 million, which is growing at 2.8 per cent per annum. The Malays constitute 53 per cent of the total population of West Malaysia and 72 per cent of the total rural population which means approximately 70 per cent of the urban population is non-Malay. Thus, if facilities for higher education are much better in the urban areas, this will bring an effective form of ethnic discrimination against the Malays. Malaysia's total GNP was M\$11,537 million in 1970, increasing at an average annual rate of 6 per cent. The *per capita* GNP is M\$1,054. The distribution of income in Malaysia is rather unequal—an urban worker earning nearly three times as much as a rural worker. This inequality is one of the main causes of imbalance in the university student population between rural and urban families and between Malays and non-Malays. Post-secondary education is available to 3 per cent of the 600,000 young people in the 17-19 age group.

There are three universities in the country: the University of Malaya, the University of Penang, and the Universiti Kebangsaan Malaysia; the University of Malaya being the oldest and the largest of the three. Only 0.6 per cent of the 20-24 year old age-group reach university level (0.4 per cent of the female and 0.8 per cent of the male population). Ninety-two per cent of the male population and 85 per cent of the female population of the 6-11 age group attend primary education. The total estimated expenditure for the Ministry of Education in 1970 was M\$381.5 million representing 16.4 per cent of the total national budget and 3.3 per cent of the GNP. Except for the two states Sabah and Sarawak, education is the responsibility of the central government. There are four media of instruction at the primary level—Malaysian, English, Tamil and Chinese. Instruction at higher levels, including university level, is offered in Malaysian and English. This multilingual system adds to the imbalance of the student intake at the university level.

With regard to admission policy, the Government, knowing the intolerable degree of ethnic imbalance in university enrolment, decided to safeguard the special position of the Malays and natives of the Borneo states by giving them special training and scholarship privileges and reserving places for them in fields of studies where the number of applicants exceeds the number of places available. Such provisions have been made in Section 47 of the University Constitution.

3. The admission system at the University of Malaya

Section 47 of the University Constitution states that a student shall not be admitted to a course of study unless he satisfies the prescribed requirements and particularly that students who have been awarded Federal or State scholarships or other financial assistance from public funds for university degree courses shall not be *refused* admission if they meet the requirements, except with the agreement of the Minister.

The second part of the above statement is directed towards eliminating the ethnic and regional imbalance in university enrolment.

From 1969 onwards the university did not have enough capacity to take in all the applicants who could meet the minimum entry requirements, and the above Constitution gives priority to applicants who have been awarded financial assistance. However, a system of selection has been evolved on the basis of the High School Certificate (HSC) examination which is strictly followed in the Faculties of Medicine and Engineering. This system, called ross (Ranking Order System of Selection) involves arranging all applicants in a rank order according to their aggregate number of points. If there are a fixed number of places available the cut-off point is put just at the n th candidate— n being the number of places available. All applicants above that level are selected and the rest rejected. If there are several candidates at the cut-off point then faculty selection committees make an *ad hoc* selection from among them, looking at individual subject grades and paper grades. The cut-off point, therefore, would vary from year to year for any faculty depending upon the general level of performance in the HSC examination, number of applicants and number of places available.

University admission and faculty selection

The admission mechanism is organized by the Unit Pusat Universiti (UPU, i.e. the central admissions unit) and an administrative unit in the Registry. The selection mechanism is organized by the administrative and academic staff in the faculties. Each faculty nominates its own faculty selection committee, which is confirmed by the Senate. At different stages several faculties may carry out selection exercises jointly.

Each year, during February all persons seeking admission to the University of Malaya are notified by advertisements placed in the local newspapers by the UPU that they may obtain application forms for admission to the forthcoming academic session in all the universities.

The UPU is administered by staff of the University of Malaya and it serves all three universities in Malaysia. Its task is to distribute application forms, process the data supplied by applicants and send the final computer print-out sheets containing particulars of applicants to each university. These sheets show the applicants arranged in various orders according to the requirements of the several faculties of each university. Applicants return the completed forms together with an admission fee of M\$10.00. The admissions unit in the Academic and Records Section of the Registry receives from the UPU the computer lists of applicants seeking admission to the University of Malaya. All applicants placed in the computer lists will have the basic minimum requirements for admission and may be considered by the faculties. The Registry forwards the lists to the deans of the faculties concerned so that the work of selection at faculty level may begin. The faculties meet several times, sometimes jointly, to select their candidates.

Offers of admission should be approved by the Senate, but to save time the Senate delegates its authority to the respective faculty selection committees. The Vice-chancellor authorizes the administration to send out the offers and the list of names are put before the Senate at its earliest meeting.

Those applicants who have qualifications other than the HSC are processed separately by the Board of Admissions consisting of the Vice-chancellor, the Registry and members of the Faculty Selection Committee. There are few cases of this type in the University of Malaya.

Criteria for admission

There are two types of requirements for admission to the university: (i) academic requirements; and (ii) other requirements. The academic requirements can be further subdivided into those applicable to all applicants and those applicable to certain faculties.

Academic requirements applicable to all applicants are attainment of certain minimum levels of performance in the MCE/SPM (Malaysian certificate of education in English or its equivalent in the Malaysian language) and the HSC/STP (High School certificate of Education in English or its equivalent in the Malaysian language).¹

Among the other requirements for admission to the University of Malaya are a minimum age of 17, satisfactory standard of health, pass in a faculty test for non-HSC applicants, and an optional test in Bahasa Malaysia—the Malaysian language.

Among the academic requirements for particular faculties, much difference exists between the arts stream and the science stream. The following criteria were applied in 1971 for admission to the Faculty of Arts:

- (a) All applicants, irrespective of whether or not they had scholarships, were offered places if their aggregate number of points was above twenty-six on the ROSS scale (mentioned on page 193). Subsequently, this was modified and the level was reduced to twenty-four points for non-Malays and twenty-three points for Malays under certain conditions;
- (b) Below this level, all scholars and all applicants with passes in two principal subjects were admitted. The scholars were within the points range twenty-three to twenty-six;
- (c) Places were offered to non-Malays who did not have scholarships but who had attained twenty-four to twenty-six points on the ROSS scale and had a pass in the General Paper and passes in three principal subjects besides fulfilling the MCE examination requirements;
- (d) Candidates with principal level passes other than in Bahasa Malaysia (Malay language) were considered for the next priority;
- (e) Then, in the light of the considerable number of applicants who rejected offers

1. To obtain the HSC certificate each candidate must offer a 'General Paper' covering topics for composition, general comprehension, logic and scientific reasoning, and at least three principal subjects or two principal subjects and two subsidiary subjects. The subject which is taken as principal cannot be taken as subsidiary, but if a candidate fails to achieve a level of performance specified for a pass in the principal subject he can still be declared to pass the same subject as a subsidiary if he achieves a minimum specified score. The General Paper is considered as a subsidiary subject.

made them, the Faculty Selection Committee again revised its criteria along the following lines:

- (i) non-scholars who were non-Malays and who had between twenty-four and twenty-six points as well as passes in the General Paper and three principal subjects and who had fulfilled the MCE requirements, or those who had passes in the General Paper with a grade of 3 or better (on a 1-9 scale; 1 highest, 9 lowest), passes in two principal subjects and passes in two subsidiary subjects or equivalent and who had fulfilled the MCE requirements;
- (ii) Malay non-scholars with twenty-three to twenty-six points with passes in at least two principal subjects. Preference was given to older applicants who had taken the HSC/STP as private candidates;
- (iii) all scholars, provided they met the full minimum entry requirements, were accepted down to a level of fifteen points.

In 1971 the Faculty of Arts of the university received 2,460 applicants, of whom 1,324 were offered places. It had to turn away 576 applicants with scholarships. Among the total number of applicants, 78.2 per cent were Malays; among the number of places offered, 72.7 per cent were given to Malays.

For the Faculty of Economics and Administration the following selection criteria were observed:

- (a) Applicants with twenty-eight to sixty-three points on the ROSS scale who met the faculty requirements were selected on merit; these totalled 489. Those who had a principal pass in HSC economics, with a grade higher than E, had the MCE requirement of a pass in elementary mathematics waived for them;
- (b) Scholarship holders with points from fifteen to twenty-seven were selected under Section 47, provided they fulfilled the minimum entry and faculty requirements; these totalled 102.

Five hundred and ninety-one, or 59.7 per cent of the 990 applicants, were offered places and 519 actually registered with the faculty.

Two hundred and forty-five of the total applicants were scholars under Section 47 and of these 235, including 197 Malays, were registered.

There were 160 applicants to the Faculty of Agriculture in 1971. Out of them 143 were offered places including 71 scholars. Ultimately 125 including 69 scholars registered with the faculty. The applicants were admitted with ROSS points ranging from thirty-one to thirty-eight while for the scholars the range was sixteen to thirty-one.

In the Faculty of Medicine regarding admission to the first year, no special provision for scholars is made (i.e. ROSS is strictly adhered to). In 1971, forty-six students registered in the pre-medical courses in the Faculty of Science, and fifty-six students, qualified in the previous year's pre-medical course, were admitted to the first-year course of the Faculty of Medicine. Thus they constituted about half of the total first-year capacity of 128.

The criteria used by the Faculty of Science Selection Committee are:

- (a) All science-stream students not selected by the Faculties of Agriculture, Engineering and Medicine were considered, although science was not their first choice;

- (b) Applicants with points ranging from thirty-five to forty-seven were selected. As places were filled, at one stage, some candidates with points from twenty-eight to thirty-four were offered to the University of Penang and Universiti Kebangsaan Malaysia;
- (c) Non-scholars who were Malays were selected down to twenty-one points on the ROSS scale. Several of these candidates were later offered to the University of Penang and Universiti Kebangsaan Malaysia as these universities did not have a sufficient number of applicants;
- (d) Later, the criteria in (b) were reviewed in light of the rate of applicants who had rejected offers. Applicants were then selected down the list to:
 - (i) twenty-nine points on ROSS;
 - (ii) twenty-eight points on ROSS if they satisfied the MCE requirements of five credits.

The minimum requirements for admission to first-year engineering are the same as for the Faculty of Science. The ratio of Malays to non-Malays in 1971 was 1:92, which is very low. So the pre-engineering course was created in 1971 to assist the Malays and students from the East Malaysian States who are relatively poor in mathematics and physics to prepare them for the levels required during the four-year course in this faculty.

The Faculty of Science requires students to select any four courses from the following departments: biology, chemistry, geology, mathematics, physics, economics or geography. The Departments of Chemistry and Physics offer a choice of either 'A' courses or 'B' courses. The 'A' course is for students who intend to proceed further in that subject during their second or third years of study. The 'B' course is for students who only wish to take the course at first-year level.

Students from the Faculty of Agriculture will normally take chemistry 'B', physics 'B' and biology 'A' in the Faculty of Science. They have to select one course from mathematics, economics or geography. The only course that first-year agriculture students take outside the Faculty of Science and inside the Faculty of Agriculture is Agricultural Economics.

Students in the pre-medical years are required to take three courses: chemistry 'B', physics 'B' and biology 'A'. To be admitted into the first-year medicine they must pass each of these subjects at a 45 per cent level, which is five per cent above the accepted level (40 per cent) for a student in the Faculty of Science or in the Faculty of Agriculture.

Thus in the first year of the Faculty of Science, service courses are provided to first-year students in agriculture and to the pre-medical students. The actual number of students that can be admitted into the Faculty of Science itself depends to a considerable extent on the number that are admitted into agriculture and pre-medicine.

Since the arrangement of courses during the four years of study in the Faculty of Science is four in the first year, three in the second year, two in the third year and one in the honours year, students can take a 'B' course in chemistry or physics or an 'A' course in biology only if they are certain that they will drop the subject on proceeding into their second or third years. They should expect to do well

enough in the 'A' courses they have selected to be accepted into the departments concerned for their further years of study.

Students can also select geology and decide to continue into the second and third year or drop it at a suitable juncture.

In the Department of Mathematics, they have to take pure mathematics and applied mathematics as two subjects in the first year if they intend to proceed to Honours in Mathematics. Otherwise, they can take the course entitled 'mathematics' as one subject through to their third year in combination with any other subject in which they can confidently expect to try for honours. In other words, 'mathematics' is not acceptable as a one-subject honours course. Biochemistry, which is provided in the Faculty of Science by the Department of Biochemistry in the Faculty of Medicine, is offered only to the second-year students in the Faculty of Science. It is not available as a first-year course.

Finally, the first-year science students may make up their four subjects by selecting economics or geography. These courses are only available at first-year levels.

An applicant to the Faculty of Science who has three HSC passes at principal level from among biology, botany, chemistry, physics, geology, zoology, mathematics, additional mathematics or geography, and a pass in the General Paper, or who has two principal level passes with at least the grade of B (where A is the highest grade and E the lowest) together with two subsidiary passes and a pass in the practical paper of his laboratory subjects, is admitted directly into the second year. The applicant then needs to register for only three subjects.

The consequence of the system of offering service courses to students in other faculties, as well as separate courses for those who intend to specialize and those who expect to drop the subject after the first year or during the following years, makes it difficult to form a clear idea of potential intake capacity of the first-year or of the second-year levels in the Faculty of Science.

4. Evaluation of the selection system and its relationship to manpower requirements

It might be observed that the ROSS scheme dominates the selection procedures in the different faculties of the university. The ROSS scheme is attractive to academicians because it gives them the impression of being objective and fair and it is easy to apply. However, it seems fair only if every applicant has an equal opportunity in the HSC examination, and indeed, if every applicant has a reasonably equal opportunity throughout the education system.

We have seen that in Malaysia educational opportunities are far superior in the main urban centres as compared to the smaller urban areas. In the rural areas educational facilities are noticeably inferior. Because of the high concentration of Malays as an ethnic group in the rural areas it often appears that because of the application of ROSS, Malay applicants are discriminated against and very few are selected.

In fact, there are four criticisms that can be made against ROSS:

- (a) The scheme of points given by the university to the different subject grades is not an equitable one. In particular, the scheme is weighted in favour of the higher subject grades. Excessive weight is given to passes at the subsidiary level as compared to passes at the principal level;
- (b) ROSS is not directly related to paper grades. Indeed, it would seem that the same number of points may be given to a certain subject grade, say 'O', where the paper grades may be three and nine or eight and seven;
- (c) The whole system of ROSS is based on the notion that the university gives points to subject grades that in turn are based on the aggregate marks given by the respective examination to answers in each of the papers. In short, before the aggregate of the university's points system can be determined, the performance of the examination candidate goes through two filters. In both instances there may be statistical 'corrections' made to ensure a more normal distribution in the general performance of candidates. In certain instances, the subject grade and the assessment of a HSC examination may be 'improved' by the paper grades.
- (d) 'Other' criteria for selection are ignored. For example, no weightage is given to candidates who have had all or part of their education outside the main conurbations. It ignores the occupations or incomes of parents or families.

The 'other' criteria have become very significant during recent times. For example, it is now widely recognized and accepted that since the educational opportunities for rural pupils are so inferior, they must be given some additional 'weightage' when they are being considered for admission. In other words, they cannot be taken as being exactly equal in all respects to applicants who have had all their education in schools in the urban centres.

Finally, the question may be asked as to whether it is possible or desirable to make piecemeal reforms of ROSS rather than a revolutionary change and perhaps abolish the whole system as it exists now. What is required is one single system that takes account of: (a) the HSC/STP results as well as the MCE/SPM results; (b) the General Paper¹; (c) competence in Malaysian and English at appropriate levels; and (d) all the criteria (whatever they may be) now adopted by the public authorities that award scholarships and affect the admission pattern by virtue of Section 47 of the University Constitution. To all this should be added the policy directives of Council and Senate regarding the ethnic balances that reflect the national pattern of balances. Such a single system would require the establishment of a central authority for admission, to indicate which students would be eligible to enter particular universities. The applicants and the faculties would have their present freedom of choice somewhat restricted. The faculties would be limited to choosing between qualified and 'acceptable' candidates. For the present stage of educational development and because of the need to 'restructure society' this seems to be the most rational step to take now.

Four kinds of imbalances are observed in the routes of access to the university. These are: (i) academic imbalance; (ii) rural/urban imbalance; (iii) language imbalance; and (iv) ethnic imbalance.

1. See footnote, p. 194.

Since the university authorities and the National Government have just begun to attempt to rectify these directly, little has been achieved as yet. It has not been possible to adjust the academic imbalance resulting from too many arts students in proportion to science and other students needed to meet manpower demands.

Because of the very high unit cost in the fields of medicine, engineering and science, and the lack of qualified teachers in these fields, admission had to be restricted. But to reduce discrimination against the Malays or the rural population, university education was provided for them in the field of arts which could be expanded without very high costs. Sixty-three per cent of total enrolment was in the arts stream in 1967. In 1971 the percentage was 65, which is far from the 2:3 ratio between arts and science recommended by the Higher Education Planning Committee in 1962. Rapid expansion of the science intake is difficult because science facilities are inadequate or inferior at all levels of secondary education in rural schools. Urban/rural imbalance has been the result of neglect of education in the countryside since the State began to provide education in Malaysia over half a century ago. This is now reflected in the quantitative and qualitative advantages of the urban students over the rural, and one finds most of the arts students admitted are from rural areas and most of the students in science and professional faculties are from urban areas.

The language imbalance has been the result of pressures for the use of Malaysian as the main medium of instruction in place of English. The students from Malay-speaking schools are less able to profit from literature in English than those from English-speaking schools.

The upshot of the above three trends is to produce perceptible feelings of ethnic discrimination. Malays form only 6 per cent of the enrolment in the Faculty of Engineering and 10 per cent in the Faculty of Science, although they have 53 per cent of the total population.

The gap between demand and supply of graduates is so large at present that detailed planning seems to be a futile exercise. But there is planning for employment and admission in the sense that government agencies consider resources and needs when establishing new faculties or universities.

Careful surveys are made in consultation with professional people, the Ministry of Education and other government authorities. This was done for the Faculties of Law and Dentistry. The intake of the Faculty of Dentistry will be increased from 32 to 128 in 1975. The Faculty of Law will be maintained at 50, with consequent reduction in the field of arts.

Award of scholarships by the Government and the private sector influences admission to different disciplines and is influenced by the needs of the country. The Vice-chancellor of the university publicly asked university graduates to contact him if they are in difficulty with finding employment. During the last decade, 9,000 students graduated from the university and only fifty such letters have been received. The university has not yet tried to influence students on their choice of disciplines. The teachers of the secondary schools are the main orientators.

The absence of any kind of statistical model reflecting the dynamic changes in the student flows through the various streams and a national manpower plan is

being felt now. The university development plans should include these and follow a system of priority in the national context. University admission policies must take into account the national objectives in order to correct social and economic discrepancies. Creation of a central planning authority with responsibility for education as a whole as well as for higher education is imperative.

Summaries of the case studies

III. Planning of teaching-staff formation

A. The formation of the teaching staff at the National University of the South, Argentina

by Alberto Eduardo Fregosi Schilling,
Director of Academic Planning, National University of the South

1. The National University of the South

The National University of the South is much the smallest of Argentina's ten national universities, with 4,337 students—compared to the 88,000 students at the University of Buenos Aires (to take the largest), or the 7,600 students at the University of Cuyo (to take the next one up). Founded in 1947 as the Technical Institute of the South, it became a national university in 1956. The university's actual area of academic influence is not easy to define; but if one adopts historical criteria (considering the general background to the creation of the university and the development of its student and teaching body from its first members to its present ones), or if one adopts geographical and economic criteria (considering the integration achieved by the university in the formation of its human resources, its influence on the socio-economic processes which have resulted, its support for original work in science, for innovation and development in technology, and for the extent to which it has succeeded in creating a 'university awareness'), on these criteria, the area of the university's influence can be regarded as the development regions of Patagonia and Comahue which constitute the southern half of Argentina. Indeed, the influence of the university now extends to other districts of the Province of Buenos Aires than those which are located in the Comahue region; an increasing number of its students are drawn from these districts where the University Institute of Olavarria has been established, which is academically dependent on the National University of the South.

The national universities in Argentina enjoy considerable autonomy. They are defined (in the relevant law) as Public Law Institutions whose essential purpose as universities is to be accomplished by:

- (a) Striving to impart a general education at the higher level, stimulating and disciplining personal creativity, the instinct of enquiry and those qualities which equip their possessors to act with propriety, patriotism and moral dignity in public and private life;
- (b) Conducting research at the highest level in the natural and human sciences and in technology, and stimulating creativity in the arts;

- (c) Training professional, technical and research personnel in sufficient number and quality to meet the requirements of the nation;
- (d) Providing for the training and improvement of their own teaching and research staff; creating the conditions for excellence and originality in their work;
- (e) Organizing the orientation, specialization, further training and keeping up to date of their graduates;
- (f) Contributing by means of publications and any other type of activity that may be appropriate to the dissemination and preservation of culture in the country; and
- (g) Studying the problems of the community to which they belong and offering solutions, when called upon to do so, by the relevant organs of national, provincial or local (communal) government.

Furthermore, it is stated that 'the activities of the universities shall be informed by genuine social feeling and shall strive to serve the fundamental interests of the nation . . . helping to foster the civic mentality and national awareness, and being solicitous for the general and regional needs of the country in close connexion with the realities of their environment'.

And in order to enable them to accomplish their tasks, 'the State shall confer academic autonomy, and financial and administrative self-government upon the universities'.

The statutes of the National University of the South lay down that the fundamental units of university education shall be departments, constituted on a field-of-study basis and exercising their function through teaching and research and through the organization of seminars and refresher courses. Working in close collaboration with the departments and the School of Graduates are the research institutes which train research workers and pursue individual and team research. In all matters relating to post-graduate studies, the School of Graduates has the main competence, although it develops its activities through the departments and institutes.

At present, there are twelve departments in the university;¹ and there are nine institutes whose purposes are 'the study of social, economic, technical and professional problems pertaining to the region they serve and pure research in those aspects in which, through the seniority and capability of the research workers, original contributions may be made'.

2. Planning and education in the Republic of Argentina

Argentina is the second largest country of South America, with a total population in 1970 of 23 millions (and an average density of 8.5 inhabitants per km²). The historical trend shows a more or less marked decline in the birth and mortality rates. These are among the lowest in Latin America and are now at levels which

1. Departments of Agronomy, Biology, Business Sciences and Administration Economics, Electrotechnics, Physics, Geography, Geology, Humanities, Engineering, Mathematics and Chemistry and Chemical Engineering.

are likely to show little further decline in the future. European immigrants contributed substantially to the population of the country up to World War I, but in recent years these have dwindled to insignificance. At present, there are seasonal migratory currents towards the single-crop areas which attract large contingents from the bordering countries.

It appears that the size of the working population has now reached a stationary level, nearly 30 per cent being engaged in manufacturing and construction work, compared to 15 per cent in agriculture and the same number in commerce. The manpower situation in Argentina presents special features which distinguish it from that in other Latin American countries. The work force has industrial experience which encourages it, to some extent, to adapt to new functions. Generally speaking, problems of specialized manpower arise at the higher levels, among executives and entrepreneurs, for example, among technical, scientific and university staff, and among civil servants and qualified workers.

The gross domestic product (GDP) per inhabitant increased from \$a950 in 1960 to \$a1,292 in 1969, although 5 per cent of the population owned 31 per cent of the national income.¹

In 1966 and 1967, the National Planning and Development Action System was set up, consisting of a National Development Council, regional and sectoral development offices, state technological information bodies, and consultancy and communications groups. The task of the system is to:

- (a) Determine policies and strategies directly concerned with national development;
- (b) Formulate long- and medium-term national plans, regional and sectoral plans; cost them out; co-ordinate their implementation; and evaluate and supervise the national resources for development;
- (c) Set guidelines for short-term planning, and for the preparation of the necessary estimates, programmes and projects;
- (d) Set guidelines to be observed by the public sector at national, provincial and municipal levels in relation to development activities;
- (e) Guide private-sector activities towards the achievement of development objectives; and
- (f) Determine the form in which the benefits accruing from the achievement of development objectives should be applied to the social welfare of the community and the international standing of the country.

At the present time, a National Development and Security Plan (1971-75) is in force.

Educational planning

All educational matters in Argentina come under the Ministry of Culture and Education, and they are dealt with as part of the current National Development and Security Plan. The broad objectives for education laid down in the plan

1. Exchange rate, July 1972, U.S.\$1 = 9.60 new pesos (\$a).

speak of developing the national culture; expanding, modernizing and integrating the educational system; democratizing education, and disseminating professional and technical ability; and decentralizing the educational administration.

There is to be an increase in the numbers receiving higher education to permit access on a wider basis, both in response to social demand and so as to provide for the requirements of national development. The pattern of enrolment will be changed and the output improved. To this end, new higher educational opportunities will be introduced both in university and non-university education as new institutions are set up and existing ones modified, thus allowing for existing courses to be diversified, intermediate degrees to be created and present capacity to be substantially extended.

Targets at this level are an attendance of 15.5 per cent of the age-group by 1975, and an improvement of the order of 5 per cent in the graduation rates from universities.

In the area of higher education, the law recognizes that the national universities must be entitled to a large degree of autonomy, drawing up their own statutes, devising their own programmes, appointing their own staff, awarding their own degrees, and administering their own funds; and that university teachers must be at liberty to expound and enquire further into their fields of study. The main qualification laid down in the law is that the university authorities shall refrain from political declarations of any kind and that they shall not permit any form of political militancy within the university precincts.

The rectors and presidents of the national universities constitute the Council of Rectors with a permanent secretariat. The Council is required to undertake studies of:

- (a) The structures and plans for study in the individual universities and to ascertain whether they are appropriate to the purposes provided for;
- (b) The organization and methods of the individual university units, with a view to improving their efficiency;
- (c) The student drop-out and repetition factors and of ways of ameliorating these; and
- (d) The financial and equipment needs of the individual universities.

In addition, the Council of Rectors is entitled to:

- (a) Exercise the joint representation of the universities;
- (b) Prepare the draft budgets for the approval of the executive power;
- (c) Programme the overall planning of official university education in accordance with the general planning of the educational system of Argentina, taking into account the priorities established for national and regional development in the promotion, creation and abolition of faculties, departments and new courses. It integrates its activity in this field with that of the competent bodies of the national government through the Secretariat of State for Culture and Education;
- (d) Impose common administrative standards; set conditions of entry for the universities;
- (e) Recommend means of co-ordinating the teaching, cultural and scientific

activities of the universities, and of correlating and systematizing the degrees they award.

The law allows for the possibility of the executive power intervening in the affairs of the national universities for a determined period of time, at the end of which they must call elections for university authorities in accordance with the statutes.

The causes for intervention shall be:

- (a) Insoluble conflict within the university itself;
- (b) Manifest failure to accomplish its purposes;
- (c) Serious disturbance to public order; or
- (d) Subversion against the lawful rules of the nation.

In addition to the ten national universities, there are also eight provincial and twenty-four private universities in Argentina. These are mostly quite small, having respectively 2 per cent and 17 per cent of the country's total student enrolment, though the number of private universities and their students have been growing steadily.

Some problems in higher education

The Republic of Argentina is one of the few countries in the world offering education entirely free at all levels, with a generous system of grants and loans. But the cost per student is rising sharply and the student population is constantly growing. Since this is not matched by an equivalent rise in GDP the economic background to education is tending to deteriorate noticeably.

This conclusion suggests that the staff at the universities should be conscientiously seeking ways of making better use of the funds available, particularly in the solution of local, regional or national problems. It should be noted that the National University of the South is increasing the number of contracts and grants of this kind which constitute an important source of additional funds. The universities are collaborating in the transfer of technology, usually imported, but they have not yet participated effectively in the creation of a national technology. The research which has been and is being carried out is not usually designed to help the productive structure of the region, or of the country, it is usually an isolated effort which is eventually published in some distinguished foreign journal.

Moreover, the universities have shown marked indifference to training the managers needed by the country to learn and practise the methods and techniques of modern management. A report from the National Development Council states that only 4.1 per cent of the managers and directors throughout the country are university graduates. One very important reason for this is that the training provided by the university is almost exclusively oriented towards the professions and even the best graduates, with abundant knowledge of their specialities, derive no benefit from their university activities in the development of their management skills. Little effort is made to provide guidance for entrants and students during their careers, so that the student's decisions are still dominated by the social prestige of certain traditional careers and the social nucleus to which he belongs.

A further factor is that first degrees are usually gained after an average of seven

years of study, longer than is usual elsewhere in the world, and leading to a substantial drop-out rate; the student is not offered any intermediate goal, with the result that the system appears rigid in its requirements, and seems unable to adapt to the possibilities of the individual entrant. All this suggests that, apart from the resulting frustration and waste of personal effort, the physical size of the universities is determined by the number of students taking the first two years of a course, which accounts for 90 per cent of the total drop-out. The creation of the Olavarría Institute, an affiliate of the National University of the South, is designed to improve this situation by decentralizing the first two years.

And finally, the concept of permanent and continuous education is not generally applicable, except in very rare cases.

3. The organization and planning of the university

The government of the university is exercised through the Assembly, the Higher Council, the Rector and the Academic Councils.

The *Assembly*, which consists of the Rector, the directors of the departments and members of the Academic Councils of the departments, is responsible for drawing up and reforming the statutes of the university; for electing (and if need be for suspending or dismissing) the Rector; for removing directors of departments and institutes; and for taking cognizance of the grounds on which the authorities intervene (if they do so) in the affairs of the departments or institutes.

The *Higher Council* consists of the Rector and the directors of departments. Its powers and duties are:

- (a) To structure the general planning of university activities;
- (b) To determine the general orientation of the teaching; approve study plans; set the scope of titles and degrees; and establish the general rules for examinations;
- (c) To approve, modify and adjust the budget;
- (d) To introduce, reorganize or suppress departments and institutes, provided that new departments would not involve the promotion of new courses; and to intervene in departments and institutes for a period not exceeding two years, upon a vote of two-thirds of its members;
- (e) To suggest the introduction or termination of courses to the Council of Rectors;
- (f) To decide on proposals to appoint or remove professors and research staff, and to appoint the juries for the competitive examinations for directors of institutes, professors and research staff;
- (g) To establish general rules for the entry and continued attendance of students;
- (h) To lay down regulations governing the constitution and activity in university life of associations of teaching and research staff, graduates and students;
- (i) To lay down the basic regulations governing academic organization and the organization of teaching, research, teaching and research courses, and fields of study; and

- (j) To establish the disciplinary and electoral systems. On the proposal of the rector, to regulate the organization and functioning of the administration and social welfare activities of the university and the system of scholarships, grants and prizes.

The *Rector's* functions and responsibilities are essentially to implement the work of development and co-ordination programmed by the Higher Council and to exercise all power of management, and in addition, to maintain relations with corporations and with scientific and university institutions in Argentina and abroad.

The *Academic Councils of the Departments* consist of the Director and seven councillors drawn from the full or associate professors and the assistant professors—membership of the Academic Council being a requirement inherent in the duties of professors. The powers of the Academic Councils are:

- (a) To elect the Director of the department and to propose to the Higher Council, by a two-thirds majority of its members, that any of its members, including the Director of the department, be suspended or removed;
- (b) To propose to the Higher Council the members of juries for competitive examinations for the appointment of ordinary, intern and on-contract professors, and special appointments;
- (c) To appoint and remove auxiliary teaching staff;
- (d) To propose study plans and the introduction and suspension of courses and degrees and entry conditions to the Higher Council; to approve the department's programmes of courses; to organize the teaching courses in its particular fields, and to put forward plans for expenditure to the Higher Council on the proposal of the director;
- (e) To appoint technical committees to study matters submitted to it for consideration; and
- (f) To collaborate in university extension tasks.

The Directors of departments have the following powers and duties:

- (a) To direct, orient and co-ordinate teaching and research activity;
- (b) To exercise administrative management or representation and to exercise his functions as superior among the senior members of the department;
- (c) To ensure order and discipline within the department and to call in, if necessary, the help of the public forces;
- (d) To take the decisions and the necessary steps to implement resolutions of the rector, Higher Council and Academic Council;
- (e) To impose sanctions on students and non-teaching staff within his department up to a maximum of sixty days suspension, in accordance with the relevant regulations.

And finally, the university has set up a centralized system of *administration*, consisting of three major areas: academic support; economics and finance; and administration as such. The administrative efficiency of the National University of the South, perhaps due to its high level of centralization, is indicated by the fact that it has the lowest ratios of teaching to non-teaching staff, and of costs per student, of any of the national universities.

The teaching body

The various categories and numbers of staff in 1971 were as follows (the total includes both those in established posts which are normally filled by public competition and those on contract):

	Directors	12	
	Global contracts	14	
Professors:	Full	136	
	Associate	63	
	Assistant	161	
Auxiliaries:	Lecturers	261	
	Teaching Assistants	368	
		<hr/>	
TOTAL		1 015	(of whom 264 have exclusive commitments)

The students

The total number of students in 1970 was 4,137—between 1966 and 1970 the number had increased only marginally. In that year, 1,036 students were sent down because they failed to achieve the minimum academic performance—this figure is about double those of the previous three years. There were only sixteen doctorate students in 1970. Post-graduate education, although increasing slightly at the University of the South, has traditionally been very limited in all Argentinian universities and has been virtually restricted to chemistry and mathematics. One of the reasons for this is that degrees awarded at the end of the undergraduate course qualify their holders to practise the occupation concerned without further test or requirement.

Planning at the university

Various types of planning have always been carried out by the university authorities but it was not until 1969, when the Planning Secretariat was set up, that a body existed to carry out the technical activities involved. When the Secretariat had been in operation for more than two years, it was changed into the Planning Consultancy, which meant that instead of a 'political' officer directly appointed and removable by the Rector, the technical activities involved in planning would be under the direction of a career officer, appointed by competition. The functions of the Planning Consultancy are:

- (a) To put forward action plans and methods of controlling and evaluating them;
- (b) To analyse and make recommendations in the following areas: academic structures, courses and study plans; student drop-out and repetition rates and possible solutions; buildings, equipment and other university requirements; planning programmes for institutes affiliated to the university; post-graduate training;

- (c) To be involved in the preparation of medium- and long-term financial plans and in integrating these with the budget through the yearly operating plan;
- (d) To collect and evaluate information relating to the planning tasks of the university;
- (e) To centralize university relations with regional and national planning and development agencies; and
- (f) To prepare general statistics concerning the university.

In addition, a Permanent Planning Commission has been instituted within the Higher Council which acts as a generator and receiver of planning projects, analysing them and forwarding them with its opinion to the Higher Council.

In an academic set-up like the University of the South, where the only academic units are departments, but where each student takes courses in various departments, it is essential to ensure the co-ordination of the programme. So Curricula Commissions have been established with the responsibility of:

- (a) Providing control and advice with regard to the development of courses, timetables, plans and programmes of study;
- (b) Checking that the contents of programmes conform to those approved by the Higher Council; and
- (c) Advising staff.

Each Curriculum Commission has among its members a course co-ordinator, who is a full or associate professor of more than 'simple' commitment; and also a regular student who has completed at least half the course with good marks. Finally, the Curricula Commissions are themselves co-ordinated by a Commission on Courses which advises both the Higher Council and the individual departments about programmes of study and their revalidation.

4. The formation and organization of the teaching staff

The National University of the South is very young, having been in existence as such for only sixteen years; inevitably, therefore, it is still in the process of building up its academic staff. During its early years, the first priority was to fill existing chairs. Now, the need is to make provision for the new departments, courses and subjects which have appeared as the university itself has grown.

At the Technological Institute of the South, which formed the nucleus of the National University, a high proportion of the academic staff had been based outside the city of Bahía Blanca (where the University is situated), usually occupying posts simultaneously at the University of Buenos Aires or at the National University of La Plata. This meant that the teaching body was of high rank, but was able to spend only a short time in contact with students and could not take an effective part in all sides of university life. Now that there has been a continuous effort to bring in staff with a fuller commitment to the university, the situation has changed so that it is only in exceptional cases that chairs are occupied by professors not residing in Bahía Blanca.

Although the system of national public competitions was used for the recruit-

ment of teaching staff, it was noticeable at first that the average seniority of the teaching body declined as the level of its assimilation into the university increased. With the passage of time and as a result of periodical competitions, of incentives to research and time to devote to it, of facilities for further training in Argentina or abroad coupled with the desire to excel, the average seniority of the teaching body has risen. The research which has been carried out, the publications of international standing produced, the distinguished contributions at congresses in their special subjects, the doctoral theses directed and the level of the courses given—these have all conferred a good professional reputation upon the academic staff in the traditional disciplines. At the same time, in some areas, there have been setbacks in the attempts to reach a suitable level, and in some academic areas no such attempt has even been made. At present very few foreign professors are being taken on, the preferred approach being to send young graduates abroad to acquire their advanced training in disciplines which are not sufficiently developed in the country.

A considerable percentage of the university's graduates have been taken on as member of staff, starting their careers as teaching or research assistants. Many of these have consolidated their teaching career, and the present Rector (though it is no longer strictly correct to refer to him as such, since he has been appointed Minister of Culture and Education for the nation) was the first to be a graduate of this university.

It is probable that these efforts were not planned in the most appropriate way, although the outcome was satisfactory, thanks to the small size of the university and the availability of sufficient resources. But the university's experience of economic difficulties, of obvious disparities in the existing levels of knowledge in various areas, of the increasing diversification of subjects, and of a larger number of staff requiring facilities for further study in their specialties, all this is leading to an awareness of the need for adequate planning which is, as yet, not being applied.

There is no general policy, and there never has been, for improving the pedagogical skills of the teaching staff. There are no organized courses, seminars or briefings on educational technology, teaching methods, student psychology, etc., showing any genuine concern with these matters on the part of the university.

Training has, however, been provided for members of the teaching staff in the problems of university administration but this has been restricted to those taking part in university government and has tended to be confined to existing procedures, without going at all deeply into the need for modernization and reform.

When one examines the present teaching staff in detail, one finds quite considerable disproportions in the allocation of staff as between departments. This has come about because the development of the university has been unplanned—there being no defined or approved objectives—so that it grows by the personal influence of its members and is inclined to take on particular staff to facilitate further training for its graduates and to intensify support in those areas in which human resources are available, rather than to try to meet goals pre-defined in accordance with any set criteria.

Earlier, the range of professorial posts was described as full, associate and

assistant professors. The statutes state that the professors shall be classed as 'ordinary' or 'extraordinary'. 'Ordinary' professors are appointed by competition, with the exception of plenary full professors. They carry out their duties at the following levels (research staff are included in these various grades):

Plenary full professors: they constitute the highest academic rank at the university. Appointment to this category requires outstanding ability in the training of students, a period of more than six years as full professor, and the publication of books or other documents making a positive contribution to teaching and/or research. 'Exclusive' or 'full-time' commitment is required. Plenary posts are permanent while their holders discharge their duties with probity and competence.

Full professors: they have charge of the general direction and orientation of the teaching. Their major task is to stimulate intellectual activity to the highest possible extent, and to be responsible for the efficiency of the teaching and research. Full professors are obliged to give partial or complete courses in their special subject, to carry out research, direct seminars and specialist courses and supervise the preparation of doctoral theses.

Associate Professors: they collaborate with full professors in teaching, but except when special circumstances require it, they cannot be registered to teach in a subordinate or dependent role. They are entitled to take the chair when no full professor has been appointed, or in the temporary absence of the holder.

Assistant professors: they collaborate with full and/or associate professors in teaching, in a relationship of dependency. They are obliged to give courses and carry out research.

Professors classed as 'extraordinary' shall be in one of the following categories: honorary professor, professor emeritus, visiting professor.

Full, associate and assistant professors reaching the age limit of 65 may be appointed *consultant professors*. In exceptional cases, plenary full professors, full professors and research staff in the same categories may be appointed professors emeriti on reaching the age of 65. These appointments will be made in consideration of proven high academic distinction in contributions to teaching and/or research, the training of students and raising of academic standards.

Professors emeriti are entitled to continue research and to collaborate in teaching. In cases in which professors emeriti wish to continue their research, the departments or institutes concerned shall make the necessary provision for them to do so.

Visiting professors are those belonging to other Argentinian or foreign universities invited to carry out teaching or research assignments for definite periods.

Until a few decades ago, university chairs were almost entirely held by professors with some other occupation as their main activity who used the knowledge and experience gained in their main occupation to strengthen their teaching at the university. The present trend is towards an increase in the number of professors with exclusive, semi-exclusive or full-time commitment, and it is only the specialities which offer definite professional outlets (such as accountancy, electrotechnics, engineering) which have a high percentage of professors with simple commitment;

in these disciplines, which are of a practical application and where there is a need for adequate planning of projects and activities in the service of the community, it is important to maintain close links with what is happening outside the university and to avoid losing touch with reality.

The National University of the South has one of the highest percentages among Argentinian universities of professors with exclusive and semi-exclusive commitment. This has enabled it to carry out research and development projects and has made it possible for laboratories and other facilities to be installed and put into operation quickly and efficiently. As a result, the standard of courses is acceptably high and the facilities are such as to encourage high-level teaching and research staff to come to the university.

On the whole, it is possible to fill teaching posts with Argentinian professors. This does not indicate any policy of excluding foreign professors, but is rather a present policy to try to repatriate as many distinguished Argentinian scientists working abroad as possible—one of the most logical channels is through the universities.

Teaching and research lecturers and assistants: the working hours of the staff depend on whether they are appointed with an exclusive commitment to carry out teaching and research work (which involves not less than forty-five hours per week, to the exclusion of all other paid activity), with a full-time commitment (not less than thirty-five hours per week, other work being permitted), with a part-time commitment (not less than twenty-five hours per week), or with a 'simple' unspecified commitment (normally nine to twelve hours per week).

Present salaries are relatively satisfactory for higher posts with a major commitment, but inadequate for those with 'simple' commitment and in the initial categories. Table 1 provides a complete breakdown of the salary structure; the figures are reduced by 6 per cent to cover personal pension contributions, social security and income tax deductions, but increased to cover various family and educational allowances. By way of comparison, here are some average salaries for other occupations in Argentina, all approximate and exclusive of family allowances which may well amount to \$a200 monthly: average salary of an accountant with eight to ten years' experience, not self-employed, \$a3,000; accountant with eight to ten years' experience working on his own account, \$a4,000; national Minister, \$a5,000; highest rank in armed forces, \$a5,000; engineer newly qualified on entry to energy Directorate of the Province of Buenos Aires, \$a1,870; Skilled worker, \$a800; Clerical, \$a600.

The uniform salary structure for each category and level of seniority makes economic incentives impossible; the only stimulus to academic performance being the desire to achieve the category of Full professor or, for those not obtaining tenure, the need to take part in competitions from time to time to remain in the posts they have reached. This need, however, combined with an exaggeratedly academic attitude on the part of some jury members as a reaction against the career-orientation which used to prevail, has sometimes led to an excessive preoccupation with building up such testimonials to academic distinction as publications, conference papers, etc., to the detriment of the purely teaching

activity which is poorly rated as a competition asset and receives little encouragement, stimulus or support at the university.

It is felt, however, that this situation will gradually improve and that in the circumstances prevailing in Argentina the competitive system is the best way of recruiting professors to the university. Its advantages will become increasingly apparent as members of juries attain the necessary maturity and experience and as the universities gain more control over the performance of teaching duties and begin to encourage their staff to improve their teaching techniques and develop their innate abilities in this area of their work.

Another factor which makes a highly important contribution to the proper running of the system is the opinion of the students who will identify and prefer those teachers who devote themselves to teaching and have the right background and teaching ability, and who will complain when this is not the case. Under present law, students do not participate in university government, but most educational and university authorities have shown themselves in favour of their doing so, as a logical way of channelling their complaints and of providing the necessary feedback to correct faults in the system.

Recruitment and promotion of staff

This is a long process designed to make the appointment of staff as objective and impartial as possible. The process for appointing professors and ordinary research staff and for confirming their tenure is as follows:

- (a) The Academic Council of the department involved supplies details of the post, commitment, discipline and reason for the appointment;
- (b) The Higher Council authorizes the holding of the competition and specifies the level of the post and extent of commitment; these tasks are publicly announced and advertised. The application period is thirty days from the end of the fifteen-day publication period;
- (c) When the application period has ended, the names of candidates are posted up on the department and university notice boards for seven days. During this period of seven days, objections to any of the candidates may be made in writing to the director of the department concerned. Any competitor may be objected to on ethical, legal or regulatory grounds. Objections must be accompanied by supporting documents.

When the objection period has ended, the director of the department immediately brings any such objections to the notice of the candidate concerned, who is entitled to reply.

When an objection is overruled, the overruling is made public, together with the name of the objector but not the grounds of the objection. The objection is not included in the evidence to be submitted to the jury.

- (d) Application may be made in writing to inspect any of the material submitted as evidence in the competition to the director of the department or other competent authority and this may be authorized in the presence of an officer of the university;

- (e) The Higher Council appoints the jury from names submitted by the Departmental Academic Council. Juries for full or associate professors consist of three titular members, from inside and outside the university, plus the director of the department *ex officio* as informant, entitled to speak but not to vote. Members of the jury must be, or have been, university professors appointed by competition, holding or having held equivalent academic rank to the post being competed for and not lower than the rank of associate; or scholars of national standing, personalities or members of research institutes or centres, all of recognized prestige in the specific field of the post being competed for. Members of the jury may be objected to on the grounds of being a relative or close friend of the candidate or of being hostile to him, or being a creditor, debtor or guarantor of his. The Higher Council decides this matter summarily;
- (f) The full material offered as evidence is sent to the jury which must then present its findings within forty-five days;
- (g) The considerations which the jury must take into account vary somewhat in competitions for full, associate or assistant professors.

In all three cases, the jury takes account of the university degree held by the applicant, which must be in or near the subject-area of the post; the only exception to this requirement shall be in respect of applicants possessing a special scientific background demonstrated by the work they have performed and able to show full and thorough knowledge of the subject under test in the competition.

In the case of a full or associate professor, the jury then considers:

- (i) The teaching work carried out by the competitor, taking account of relevant courses, programmes and publications, training of students, and pure or applied research projects making an original or effective contribution to a branch of the subject;
- (ii) Academic titles, management and consultative functions in the university field;
- (iii) Length of time spent in teaching or research at the level of professor, which must not be less than five years for a full or three years for an associate professor;
- (iv) Testimonials of the candidate's professional aptitude;
- (v) The oral test, when the jury sees fit to require this;
- (vi) The capacity of the candidate to analyse problems within the discipline covered by the competition and his knowledge of it by means of an interview at the discretion of the jury;
- (vii) Appraisal of the merits of all competitors, on a strictly academic basis, paying more attention to the quality than to the quantity of the supporting material presented by each candidate. Appraisal is to be on an overall basis, not by marks.

In the case of an assistant professor, the jury then considers:

- (i) The teaching and academic skills of the applicant who must have been engaged in university teaching for at least three years, of which at least one year must have been at the level of lecturer or practical work leader;
- (ii) The extent of his initiation into research;

- (iii) Other aspects of his university career such as qualifications, curricular and special courses and other higher studies;
- (iv) The oral test is compulsory for those seeking to enter this academic category for the first time, but is at the discretion of the jury in other cases.
- (h) When the jury decides, or is required, to hold an oral test, it must be held in accordance with the following rules:
 - (i) Each member of the jury forwards, in good time, two closed envelopes to the director of the department concerned, each envelope containing a theme relating to the subject-area of the competition for an oral dissertation not exceeding sixty minutes, the length to be decided by the jury;
 - (ii) The department summons all candidates taking the oral for a public opening of the six envelopes and drawing of the theme, forty-eight hours before the date set for the test; on the same occasion the order in which competitors are to make their oral dissertation is drawn;
 - (iii) The theme must be common for all the competitors and the jury then appraises the didactic skill of each;
 - (iv) The dissertation is in public but other competitors are not permitted to attend.
- (j) The jury then remits to the directorate of the department its majority findings, showing a list of all those competitors judged suitable as holders of the post competed for, giving their order of preference on the basis of the appraisal of the applicants, and formally noting in detail its comparison of the degrees, merits, experience and scientific aptitudes of the competitors. Teaching skills are evaluated separately if an oral test has been taken.
- (k) There is no appeal against the findings of the jury but competitors are entitled to protest against irregularities in the procedure of the competition up to three working days after the findings have been made known, so that the Academic Council may take note of such protests and use them as grounds for totally or partially voiding the competition.

Directors of departments display the order of merit determined by the jury for a period of three days in prominent places within their respective departments and in the university and hold a copy of the complete findings for those wishing to inspect it.

Within five working days of being notified of the findings of the competition jury, competitors are entitled to contest them. In this event, the Academic Council decides whether the findings are to be upheld, by a vote of two-thirds of all its members. Only candidates for posts as full professors are entitled to appeal to the Higher Council.

- (l) Full accounts of the proceedings are then delivered by the Directorate of the department to the Academic Council, within five days of receipt of the findings of the jury. Within a period not exceeding thirty days, the Academic Council proposes one of the following alternatives to the Higher Council:
 - (i) By an absolute majority vote of all its members, that the candidates be appointed in accordance with the order of merit recommended by the jury, or that the competition be declared void if recommended by the jury;

- (ii) By a majority vote of two-thirds of all its members, that the competition be declared void, in full or in part.

The Higher Council is entitled to approve the proposal of the Academic Council by a simple majority, but requires two-thirds of the votes of all its members to reject it.

No candidate other than the candidate listed in first place by the jury can be appointed, unless the first candidate declines; when the Higher Council can appoint the candidate placed second by the jury, and so on.

The Higher Council must come to its final decision upon the competition within sixty days of receiving the proceedings from the Academic Council.

- (m) Appointment as full professor is for three years; and for associate professor, seven years.
- (n) There is no appeal against the resolution of the Higher Council except that of contestation by candidates only.
- (o) Appointment of plenary full professors and research fellows of equivalent category is exclusively by competition of degrees and experience. To be admitted to the competition for a plenary full professor or research fellow of equivalent category, applicants are required to meet the following conditions:
 - (i) To have spent a minimum of ten years at a national university exercising the functions of associate or full professor, by competition or on contract, with a category equivalent to that of full professor, director of department or institute of which six years must have been in the titular category;
 - (ii) To have published research material of sufficient weight to be of renowned intellectual and scientific value;
 - (iii) Show impeccable conduct and dedication to teaching and research.

The competition in these cases follows a very similar procedure to the one already described.

- (p) Full professors can acquire tenure in any of the following ways:
 - (i) Having won a full professor competition and upon expiry of that term, by winning a further competition for the same level and post as the first;
 - (ii) Having won a competition for the category of full professor, by being confirmed in his post upon the expiry of the original term, by the Higher Council of the university, upon a proposal voted by the Departmental Academic Council.

The process of obtaining tenure for a full professor is that the director of the department supplies the Academic Council with an exhaustive and detailed account of the way the professor has carried out his statutory duties, of his work, experience, projects carried out and proposed projects. Also, he gives his views on the desirability or otherwise of confirming the full professor. At the same time, the department advises the individual concerned that the tenure procedures have been initiated. The Academic Council, having evidence of the experience of the professor and the views of the director of the department, takes its decision within sixty days following its receipt of the proposal and these proceedings are then put before the Higher Council, which proceeds within the sixty days following to appraise all the evidence of experience and performance and decides whether

or not to agree to the proposal of the Academic Council. Should the Academic Council or the Higher Council not confirm the candidate, a competition is then convoked in accordance with the present regulations. If the candidate wins the competition, he obtains confirmation. For an associate or assistant professor to be confirmed, the procedure is the same.

The teaching career of a member of the university staff normally begins in the rank of teaching assistant. As such, he collaborates under the direction of the lecturer in the organization and implementation of the practical work which completes the theoretical teaching of the subject. After at least two years, the junior lecturer should have perfected his theoretical knowledge and completed his practical work in which he will have developed considerable skill; he will be able to answer many of the questions which arise in his subject and will have acquired experience of explaining material to university students, so that he gradually takes over the introductory explanation of each topic.

Since a candidate's access to the post of junior lecturer is obtained by competition and dissertation before a jury consisting of three professors, at each competition he perfects his lecturing technique, while throughout his time in the post he is collaborating with other teaching staff on development or research projects, and in that way, he is building up an academic background. Also, he is introduced to research, advised by a more senior member of the staff with the capability and experience to direct the project.

The next stage in the teaching career is the post of Lecturer. This requires a competitive procedure similar to the competition for a junior lecturer, though naturally with higher standards; his tasks include directing and organizing practical work and responsibility for the initiation of junior lecturers, starting with their teaching skill. He also lectures on some part of the theoretical programmes under the guidance and supervision of the professor, accumulating experience and completing his theoretical knowledge. Also, he will normally be taking an active and important part in research and development projects and his name will be starting to appear as one of those involved in the resulting publications, conference papers, and so on.

After a minimum of two years as lecturer, he may rise through a similar competition and dissertation to the post of assistant professor. His duties will normally be to work in an assistant capacity with an associate or full professor, either in the same subject or in a different subject within the same area.

When he has accumulated a substantial academic background, his career may culminate with a post as associate or full professor. The full professor is of higher rank, but both categories are regarded as close to one another since the same levels of capability and experience are required to hold a chair as to be in charge of a particular area or a department. Directors of institutes are, however, required to be full professors.

Thus, the normal process of staff formation at the National University of the South is described and it will be noticed that selection is on the basis of repeated competitions. Pedagogical training is left to the greater or lesser ability of the

person concerned, and to whether he is fortunate enough to start under a professor with good teaching ability.

This process is subject to considerable distortion, in fact. Some subject areas are covered only by assistant professors; staff at all levels may have to take part in repeated competitions to retain their posts for lack of an established vacancy; some professors rise rapidly as posts are available and their juries are not too demanding; in many areas, there are no posts as lecturer or as teaching assistant so that the one has to perform the duties of the other. When senior posts are occupied on less than an exclusive or semi-exclusive commitment basis, research and development disappear, as do the opportunities for newcomers to participate in them. Then, some full and associate professors carry out no significant teaching or research activity—there is little control over what they do and the careers of junior teachers who start with them are jeopardized as a result; senior teaching appointments are sometimes held by staff who have an important scientific background but who have not acquired teaching experience. And then, salary rates at the more junior levels are very low and provide no economic incentive to begin a teaching career.

These defects are due not only to the lack of planning but also to failings in the various parts of the university—failings which would still be present even if the ideal plan were in being. This is understandable enough, since the university is still at the stage of consolidation.

Each department and institute has its own programme for sending grant-aided students abroad, which is pursued with greater or lesser vigour. In 1972 the Higher Council introduced a process for keeping account of these individual programmes. Hitherto, the main purpose of the scheme was to provide an incentive to further training and to make it possible for teaching staff to take academic qualifications in centres of excellence abroad. Leave is classified as 'long' or 'short'. Long leave is for a period exceeding six months and is granted by the Higher Council; short leave is for periods of less than six months. In all cases, granting of leave is held to imply that the department or institute takes responsibility for the performance of the staff member concerned.

To apply for long leave, the staff member must have more than two years seniority in university teaching. Long leave will normally be granted for a period of up to one year, extendable for a further year and, exceptionally, for a third year, after an appraisal of the activities and use made of the preceding years. No more than three years of long leave may be taken in ten years, though short leave on pay may be taken during the period.

Short leave is granted for the purpose of attending congresses, symposia, courses, conferences, and so on, of a scientific, technical or cultural nature in Argentina or abroad; and for the purpose of giving courses, conferences, etc., by special invitation of another university or scientific, technical or cultural centre. Members of staff can apply for unpaid leave for similar purposes.

Teaching and research staff with exclusive commitment to the university have the right to take leave for purposes of special or general study, including cultural types of study, for up to twelve working days per year of service cumulatively,

from 1 January 1967 up to a maximum of forty-eight days. Such leave, which may be taken in increments, may be granted by the Director of the department or institute after satisfying himself that granting it will not impede the work for which he is directly responsible.

5. Evaluation of the work of the staff

As far as statistical information is concerned, the situation varies so widely that it is practically impossible to put forward any general rules to describe the evaluation of the work of the staff.

The amount of time individual members of staff spend on teaching, laboratory and field work, supervising projects and on research on the one hand, and acting as co-ordinators for subject areas, as directors of departments, as members of councils, on the other, varies enormously from individual to individual; and because these various tasks are not distributed uniformly, teaching staff find themselves confronted by sudden peaks of work. Moreover, in most cases, there is no organization of student work outside class timetables. There are no fixed consulting hours because, traditionally, the small size of the university and the closeness of communications and relations among staff and students which this allows has meant that staff deal with such questions as they arise.

Furthermore, examinations account for a great many hours in those courses where there are substantial numbers of students, especially since they tend to last for a long time at the National University of the South. In many subjects, the system of partial examinations at the end of the term is in use, involving three or four written or oral tests which impose a considerable load on the teaching staff. It thus becomes almost impossible to establish statistical values of the amount of time this takes up, bearing in mind that there is no fixed number of examination dates but that they are held on days agreed with the students.

The various work assignments are generally allocated at the level of each department. The university has a serious problem of shortage of lecture halls so that timetables have to be organized on the basis of the physical resources available. Each theoretical class has a maximum length of two hours; but two or three classes may occur consecutively, especially since subjects are not taught on a yearly basis but on the basis of a system of correlations. This means that students at the same stage of their courses may be taking different subjects. There are what are called 'preferential plans' which represent a compromise on the part of the university to enable the student to complete all the subjects in his study plan by matching them to these plans. Within the 'preferential plans', timetable irregularities, such as consecutive classes, are exceptional. But the university takes no responsibility for those who depart from them, who may encounter clashes, consecutive classes, subjects not covered during the most appropriate term, and so on.

Computers are not used in the preparation of timetables because the institution does not possess one. However, staff carry out some work requiring data processing facilities by using equipment at other universities, businesses, or municipal or government equipment.

There is no systematic evaluation, generally speaking, of the performance of the teaching staff. This is partly because the system of appointment by competition provides a periodical analysis of the academic output of the professor. When a competition takes place, the candidate's professional teaching and research record, his personal characteristics, work habits and extra-academic activities in the university are taken into consideration, as well as the effectiveness of the courses he gives in terms of the success of the students, the junior colleagues he trains, and so on. The views of the students can only be seen, at the present time, from the popularity of the classes and the more or less obvious dislike of certain professors. This dislike generally leads to notes being submitted to the Academic Council concerned and the outcome depends on the steps taken by this body and the type of complaint, but they may result in the substitution of the professor concerned.

Before the present law came into force, student delegates participated, with the approval of most university thinking in the country, in the government of the university. This provided a direct and logical channel for students to express any dissatisfaction with members of the staff. All are agreed that there must be a return, under the new law, to student participation in the government of the universities.

One of the major difficulties to be overcome in any appraisal procedure is to obtain the fullest possible basic information. As an approach to this, from 1972 onwards each department or institute submits a standard report to the Higher Council of its activities for the year with an annex providing the equivalent information for each professor as follows:

Part 1: Teaching activity

- (i) List of curriculum subjects in each term, number of lectures given in each subject and total number of students per subject.
- (ii) Extracurricular teaching work performed (lectures, seminars, conferences, etc.).

Part 2: Research or development activity

In this part, there should be shown, as a minimum, a list of the subjects of projects in hand within the department.

Part 3: Publications or reports

Part 4: Co-operation with other agencies

A description of the work performed by the department.

Annex 1: Consisting of tables relating to the department.

Annex 2: Consisting of tables completed by the professors in the department.

Annex 3: Any other information the department may feel it necessary or desirable to add.

This system is designed to provide a uniform basis on which to take account of the

information submitted by all the departments and institutes and to take stock of the activities of each professor.

The National University of the South is not organized along entrepreneurial lines, or in quest of maximum efficiency, but in a spirit of mutual accommodation based on great freedom of personal action, achieving results through personal initiative; acceptable results have been achieved with this approach because of the low student numbers and the small size of the university. But the approach is now very much under review as the natural growth of the institution will force it to bring itself up to date and to adapt itself to changing realities.

There are two factors bringing about a change here:

- (a) The universities are becoming aware that, in programming their activities, one of the considerations which must be taken into account is an adequate degree of efficiency;
- (b) The constant reduction in the resources made available by the Government to the universities, due to the economic situation of the country, stimulates this awareness and encourages the universities to undertake assignments on contract or paid for by grants where accounts of the work performed have to be provided in a more precise way than is necessary within the university.

B. Formation of the teaching staff at Cairo University

by H. M. Ismail,
Rector of Cairo University

1. *Cairo University*

Higher education in Egypt developed in the nineteenth century when the impact of European civilization on Egyptian society was tremendous. Scholars of the traditional centre of literature and science at Azhar University felt the challenge of a more developed system of learning, and many of them rose to meet it.

Not many years afterwards, higher schools modelled after European (mostly French) patterns of education were established in Egypt. Students were recruited from among the most brilliant students of Azhar.

This higher education was established principally to supply the needs of the civil service, and to supply the army with doctors and engineers. Schools of Engineering and Medicine, including branches in veterinary medicine and pharmacy, were established, followed by the School of Agriculture and Dar-ul-Ulm (School of Arabic and Islamic Studies) later in the century. The School of Law was established in 1868, and a School of Commerce in 1911.

At the beginning, teachers were all foreigners; and as most of them could not speak Arabic, an interpreter would always accompany the teacher in the classroom and in the laboratory. This procedure went on until provision was made for students to learn a foreign language (French) in order to dispense with the cumbersome aid of the interpreter.

However, it was not until the beginning of the twentieth century that a modern university was to be established, a university that would be the mother of all modern universities in Egypt, with the exception of the venerable Azhar University.

In 1906 a group of eminent Egyptians began to discuss the feasibility of founding a national university; and they actually began to collect subscriptions for this purpose. Contributions were freely and enthusiastically given, and the university was officially inaugurated in 1908.

The university sent several students on missions abroad in order to create a staff of qualified lecturers. Meanwhile, some distinguished scholars from European universities were invited to come over to Cairo, and in collaboration with their Egyptian colleagues, set up courses in history, Arabic literature, philosophy and

economics. Together they created the concept of university education in the modern sense.

In 1917 government authorities contemplated the foundation of a state university; and a committee was constituted to study the question. But it was not until the year 1923 that an agreement was reached with the government, by which the then existing National University became the nucleus of a Faculty of Arts in a new state university with an independent status in respect of both its administration and the organization of its faculties and departments.

In 1925 a decree was issued for the foundation of the State University under the name of 'The Egyptian University', comprising the Faculty of Arts and the new Faculty of Science, and affiliating the higher schools of medicine and law with the status of university faculties. Later on, in 1935, the higher schools of engineering, agriculture and commerce were also incorporated into the new university. And in 1946 the school of Dar-ul-Ulm was also affiliated to the university.

The incorporation of these higher schools within the new university created the need to establish alternative vocational institutes, since the country could ill dispense with the graduates who used to acquire technical know-how and skill in these schools. But, later on, some of these higher institutes were once again given the status of faculties within a new university (now Ain Shams University). This meant that the original title, 'The Egyptian University', could not be used. At first the name was changed to 'Fuad I University', then to Cairo University in order to distinguish it from other universities that have eventually branched out of it (Ain Shams, Alexandria and Assiut).

In 1969-70, Cairo University had a total of 51,000 undergraduates and 10-11,000 postgraduates, of whom about 1,200 were studying for the Ph. D. And it had a staff of 1,650 faculty members and about 1,800 demonstrators.

The university consists of twelve faculties¹, and three institutes (of Statistical Studies and Researches, Cancer and Nursing); institutes of African Studies, Archaeology and Information are just beginning. The Khartoum (Sudan) branch of Cairo University comprises three faculties: Arts, Law and Commerce. The Mansoura (Lower Egypt) branch comprises three faculties: Medicine, Science and the Teacher-training College.

The administration of the university

The university is administered by the Senate with the Rector as chairman.

The Senate, a comparatively small body, is constituted of the Vice-rectors, the twelve deans of faculties, one of the under-secretaries of the Ministry of Higher Education and three members experienced in university education.

The Rector, who is appointed by Presidential decree at the recommendation of the Minister of Higher Education, must have already occupied a chair at one of the universities. He is in charge of the academic, administrative and financial

1. Arts, Law, Commerce, Economic and Political Sciences, Science, Medicine, Pharmacy, Dentistry, Engineering, Agriculture, Veterinary Medicine, and Arabic and Islamic Studies.

affairs of the university, and he represents the university in all its relations with other organizations. The Vice-rectors assist the Rector in the management of the university. One of them is responsible for post-graduate studies and research. The other Vice-rector is in charge of undergraduate studies and student activities in general. And there are Vice-rectors for the Khartoum and Mansoura branches.

The Vice-rectors are appointed by Presidential decree at the recommendation of the Rector of the university.

The university is administered according to a system of decentralization. Each faculty is, to a great extent, a separate entity, managing its own academic and administrative affairs and regulating its finances according to the budget allocated to it.

The Faculty Council is constituted of the Dean, who acts as chairman, the Vice-dean, the heads of departments and a professor from each department. The departments function as independent units as far as academic, administrative and financial affairs are concerned. A department is headed by the most senior chair-professor. The department council is constituted of the professors, the assistant professors and two lecturers to be chosen alternately each year.

With the multiplicity of universities, the need for co-operation among them arose. The Supreme Council of the Universities was constituted, consisting of the Minister of Higher Education, as chairman, the Rectors and Vice-rectors of the universities, a representative of each university nominated by its Senate for one year, no more than five members experienced in university education, and the Secretary of the Council.

The chief functions of the Council are:

- (a) Planning the general policy of university education and research and orienting them in accordance with the nation's requirements, so as to ensure the achievement of the national, social, cultural, scientific and economic objectives of the state.
- (b) Co-ordination of academic studies and academic degrees in the various universities.
- (c) Co-ordination of academic courses and degrees in the corresponding faculties and departments of the various universities.

The formation of staff

In addition to teaching and the supervision of research work, all aspects of university activity are controlled and guided by the teaching staff. Even various student activities are still dependent on the initiative and surveillance of teacher supervisors. The administrative body of the university (other than members of the staff holding key positions in administration) have no share in the activities of the university outside their clerical duties. Hence comes the great importance of creating a teaching staff in relation to the whole of the university's life; for all aspects of its success depend on the quality of the teaching staff.

The main problems concerning the formation of teaching staff are:

- (a) The student/teacher ratios are above the norms prescribed by the Supreme

Council of the Universities.¹ The annual increase in admissions is 10 per cent, which can be attributed largely to guaranteed employment in the government and thriving careers for graduates in Egypt as well as in other Arab countries. The government provides an allocation of funds for the purpose of increasing the number of demonstrators and of members of the staff, in order to keep up with this steady increase in enrolments and also to endeavour to reach the ideal student/teacher ratio laid down by the Supreme Council.

- (b) Inadequate funds allocated to equipment, added to the complications and difficulties in purchasing equipment in local currency, discourage many members of the teaching staff and dampen their enthusiasm for further research and laboratory work. To cope with this problem, the Ministry of Higher Education has established a special department to manage and conduct the purchasing of books and laboratory equipment for the universities. But, so far, it has not fully succeeded in solving the problem.
- (c) The high cost of living renders university careers less lucrative. To make amends most university teachers seek extra work in other universities or extra paid work in their own university; and thus devote less and less of their time to research or the supervision of their students; and the relationship between teacher and student inevitably suffers.
- (d) The stipulation of a Ph. D. for appointments to the teaching staff deprives the university of the services of some eminent scholars and men of experience.

2. Planning for higher education in Egypt

Egypt occupies the north-eastern corner of the African continent, and extends across the Gulf of Suez into the Sinai region. Its area is approximately 386, 200 square miles, but of this only 4 per cent can be said to be permanently settled, the remainder being desert or marsh. Between 1963 and 1969, Egypt's population increased from 28 millions to 32.5 millions. Despite its low *per capita* income, Egypt has an advanced system of communications, irrigation, public administration and education. Indeed, in education, Egypt has been a net exporter of skills, mainly to the other countries of the Arab world. Though the proportion of GNP allocated to education decreased from 5 per cent in 1961 to 4.5 per cent in 1968, the total expenditure went up from E£73 million in 1961 to E£132 millions in 1968, of which about 20 per cent was being allocated to higher education.²

Until 1961 the Ministry of Education was responsible for higher education, including the universities, as well as for general education. With the extension of higher education and the multiplication of universities, the need arose for a more specialized department of the state, and to that end, the Ministry of Higher Education is now directly responsible for all university institutions and for the vocational higher institutes spread throughout the country. These institutes have been established to supply the needs of a fast-growing developing society. The

1. See Table 2, p. 240

2. Exchange rate, Juli 1972, U.S.\$1 = E£0.4348

distribution of these institutes in the various areas of Egypt, the selection of their courses and the size of their enrolments have been planned according to the socio-economic needs of the country.

The responsibilities of the Ministry of Higher Education are: (a) to initiate research in and formulate policies on all levels and types of post-secondary education; (b) to prepare and implement plans and projects; (c) to plan the extension of post-secondary education without involving duplication or repetition; (d) to provide equal facilities for higher education in all regions of the country; (e) to evaluate curricula and textbooks; (f) to lay down standards for the faculty; (g) to ensure a suitable flow of graduates to government and industry and commerce; (h) to ensure close contact between higher education and the community. The Ministry is also responsible for supervising all cultural and educational projects with other countries.

The chief link between the Ministry of Higher Education and Cairo University is that the Minister is the chairman of the Supreme Council of the Universities.

The Ministry of Higher Education was the first authority in the country to recognize the importance of planning for the requirement of high-level manpower (specialists and technicians).

The first attempt at manpower planning used the questionnaire approach for the ten-year period 1965-75. The results of the analysis gave a fair idea of future needs within different specializations and helped in drafting the second five-year plan (1965-70).

The second project concentrated on studies made by six specialized committees organized in 1963 for educational planning in the fields of engineering, basic science, social sciences and humanities, commerce, agriculture and the medical professions. The terms of reference of these committees were as follows:

- (a) To determine the efficiency of the present educational structure for the quantitative fulfilment of manpower needs in the different sectors, so as to meet the demands of the development plan.
- (b) To determine the qualitative efficiency of the present educational structure and to suggest any developments required by the dynamic process of social and economic development.
- (c) To what extent is there an integration between the different stages of the educational structure in relation to supplying the various categories of manpower, on the basis of continuous upgrading and affording equal opportunities to all citizens?

A more scientific study started in the Institute of National Planning and a comparison between the supply and demand for the period 1965-85 was determined. Certain occupational structures were assumed to consist of six main categories: directors and specialists, technicians, clerical staff, skilled workers, semi-skilled workers, and unskilled workers; and within each category there are different professions which in total amounted to fifty-two professions, later grouped into twenty-eight. Working from the base year 1960, the figures for every five years until 1985 were determined on the assumption of certain rates of productivity growth, and other social and economic factors. Through use of this method it proved

possible to analyze the figures obtained for the professions in the first two categories, which require higher education in the universities, higher institutes or technical institutes.

Out of such studies as these, the Ministry of Higher Education is providing information about the manpower needs for the professions and for technicians which is essential to the country as it extends its policy of large-scale industrialization.

3. The organization and recruitment of the teaching staff

Categories of the teaching staff

The teaching staff at Cairo University consists of demonstrators, lecturers, assistant professors and professors.¹

- (a) *Demonstrators:* Each year a number of the top graduates in each department are appointed demonstrators. They often help professors, assistant professors or lecturers in teaching, but sometimes they are exempted from teaching and from other tasks provided that the department has sufficient members of the staff available for teaching. In that case they are allowed to use their whole time in the preparation of their Ph. D., which is a prerequisite for any position on the staff. A demonstrator may be also sent abroad to get his degree.
- (b) *Lecturers:* Once a demonstrator succeeds in getting his Ph. D. degree, either from an Egyptian or foreign university, he is entitled to be promoted to lecturer. Lecturers constitute the basis of the teaching staff. They may participate (as part-supervisors) in the supervision of research work leading to an M.A., M. Sc. or a Ph. D. degree, provided that a professor or an assistant professor is chief supervisor.
- (c) *Professors:* Professors and assistant professors, besides teaching, supervise research work done in the department, especially by demonstrators reading for their post-graduate degrees. Professors without chairs are a recent innovation which has been introduced to facilitate the promotion of assistant professors who would otherwise have to mark time waiting for the chair in a certain discipline to fall vacant to get their professorship.

The work load of a professor is eight hours per week; of an assistant professor is ten hours per week; and for a lecturer is twelve hours per week. If the demonstrator is given a teaching task, his work load is usually fourteen hours or less, according to circumstances. These rules apply for all faculties and all disciplines.

Part-time teachers

The university avails itself of the services of its former professors on pension (from the age of sixty), who are re-appointed as part-time professors. Also scholars holding key positions in the government or in private concerns are eligible for the

1. See Table 1, p. 239

post of part-time professor. The usual work load for a part-time professor is eight hours per week.

This system of employing part-time teachers helps to surmount that sixty-year barrier that would otherwise have deprived the university of the services of its able professors simply because they have reached a certain age. Also men of experience in industry or professions with key jobs in the Government, make a valuable teaching contribution to the university; and scholars not holding a Ph. D. can also be employed in the university, whereas they are barred by the regulations from being appointed to the staff. Also professors given key positions in the government (as often happens now) may thus continue to teach at the university.

Whenever there is a shortage of teachers in any department, non-permanent teachers from other universities or from similar departments at the same university are employed and paid on an hourly basis. Members of the staff whose time-table hours exceed the prescribed work load are also paid at the same rate.

Opportunities for the teaching staff

By ideal standards, there are not enough teachers of a satisfactory quality. Yet those at present in the university serve to satisfy the needs of society and, what is more, to help in building up the educational system of the other Arab countries and to supply a great part of the needs of these countries for the professions. Members of staff are allowed to serve in other Arab countries provided that they do not stay away from their department for more than three years, and provided also that a sufficient number of their colleagues are available to perform all the tasks within the department in their absence.

This delegation of teachers to other universities in the Arab world is always discussed by the Faculty Council and the department concerned. At present about 10 per cent of the teaching staff of the university is serving in the universities of other Arab countries. The salaries these universities offer are more attractive; and thus each member of the staff who is allowed to serve in one of these universities feels compensated for the hard work and the comparatively low salary he gets from his home university.

Apart from teachers of foreign languages and visiting professors, the university has no expatriate teachers.

Business and industry take away some of the best-qualified members of the staff. The advantage of this is that it serves as a practical link between the university and business, industry and society in general. Also former university teachers holding key positions in the government serve to establish closer ties between the university and other government institutions; and this also facilitates good relations between the university and society in general.

In terms of salary, a professor ultimately reaches the same level as an Under-Secretary of State in the government; and there is a very limited number of key positions in the government of the same calibre. When it is reckoned that a member of the staff usually gets a professorship in his late forties, the prospect of

securing the salary of an Under-Secretary of State at approximately the age of fifty is not wholly discouraging.

However, the university is anxious to encourage members of the staff and has rendered the teaching profession more attractive in the following ways:

- (a) As already mentioned, they are allowed to serve for some time in other Arab universities and in foreign universities where the pay is more attractive.
- (b) Extra work beyond the prescribed load for each category of teachers is compensated. This extra pay sometimes amounts to 30 per cent of the salary.
- (c) A teacher is paid for marking examination papers in excess of a certain number.
- (d) The university has, of late, made agreements with industries wishing to avail themselves of facilities and expert advice at the university. After three years of service, a lecturer is allowed to give expert advice in his own specialization. This offers him great opportunities to participate in major projects undertaken by the government or by private enterprise. Apart from the financial gain, which is by no means small, lecturers can acquire considerable experience especially in the practical and applied aspects of their specializations.
- (e) There is also the opportunity for any member of the staff to be a party to one of the research contracts concluded by the university, which may mean a substantial gain in money as well as an opportunity for further research work sponsored and financed by industry.

Forecast of requirements

The expansion of the staff in any department or faculty follows the increase in the number of students in that department or faculty. Prospective increases in different disciplines are planned in relation to the volume of demand, although the upshot seems to be that faculties and departments always accept students in excess of the facilities available; as this process occurs with regularity, there are always pressing demands for more and more additions to the existing staff. These additions rest upon the joint decisions of the university and the Treasury. Moreover, the steady development of curricula enables departments to introduce advances in their disciplines, which may eventually involve the establishment of new posts for demonstrators, assistant professors and professors, and the creation of new chairs in the faculty.

In order to expand and develop, each department, faculty and university prepares a five-year plan of development. This plan is first closely examined in all its details by each department concerned, for its expansion and development has to be based on the estimated number of enrolments each year. This, in turn, is controlled by the actual needs of the country for certain disciplines. Additional enrolments should not exceed five per cent each year. As a general rule, the department takes into consideration the number of graduates and the possible expansion of graduate studies and research work and also laboratory facilities.

Reports and studies of the requirements of the various departments are co-

ordinated by the council of the faculty; then the proposals of the different faculties are further co-ordinated at the university level by the Senate.

These needs are translated into a five-year plan for missions and study leaves and for new posts for demonstrators and members of the teaching staff. The Supreme Council of the Universities, after taking into consideration the demands of each faculty, then reaches a compromise in deciding how many students are to be enrolled in each faculty. These decisions of the Supreme Council take account, naturally, of the reports of the planning organs of the government about the actual needs of the country for government employees and for the various professions. The Supreme Council's proposals are then referred to the Treasury, since all Egyptian universities depend wholly on the central government for their financing. Occasionally other pressing demands on the national budget hinder the fulfilment of all these plans. In that case, universities have to content themselves with such budgetary allocations as are available; and the five-year plan is sometimes extended to seven or eight years, and sometimes even more than that.

The real drawback of such a system of planning is that it is inevitably liable to be obstructed by the restrictions of the government budget. Yet, these restrictions have recently been greatly loosened, since the state has become aware of the fact that the rehabilitation and development of the national front (especially the academic aspect) is necessary for the maintenance and perpetuation of the war efforts against aggression which Egypt believes to be the most pressing and immediate of its needs at the present moment.

We hope that, once peace has been secured for our country, most of the problems of finance will be solved and we will be able to have a free hand in allocating the funds essential for the development of the university.

Appointment of staff

There are two essential qualifications for appointment as lecturer:

- (a) A Ph. D. degree from an Egyptian university or its equivalent in any other foreign university;
- (b) An interval of at least six years between graduation (B. A. or B. Sc.) and application for the post of lecturer.

A candidate for the post of assistant professor should fulfil the following requirements:

- (a) Have held the post of lecturer for at least five years at one of the Egyptian universities or at any other institute of the same status;
- (b) An interval of eleven years since graduation;
- (e) Original research work and significant social or sport activity inside the university.

A candidate who is not already a member of the staff should fulfil the following requirements:

- (a) Have obtained a Ph. D. at least three years in advance;
- (b) An interval of at least thirteen years since graduation;

(c) Original research work.

A candidate for the post of professor should fulfil the following requirements:

(a) Have held the post of assistant professor for at least five years at one of the Egyptian universities or at any other institute of the same status;

(b) An interval of at least sixteen years since graduation;

(c) Original research work.

A candidate who is not already a member of the staff should fulfil the following requirements:

(a) A Ph. D. at least five years in advance;

(b) An interval of eighteen years since graduation;

(c) Original research work.

The usual procedure for the appointment of new professors or assistant professors or lecturers is as follows:

(a) In the first place, posts are advertised specifying the academic field of specialization and provisions for appointment. Applications are sent to the dean of the faculty concerned, together with copies of papers or books previously published by the applicants.

(b) An application for the post of professor is submitted to one of the permanent committees established by the Supreme Council of the Universities. Applications for the post of assistant professor or lecturer are submitted to *ad hoc* committees recommended by the department concerned, and set up by the faculty council, provided that this recommendation is endorsed by the Senate of the university.

The selection committee for lecturers is made up of two professors or assistant professors. For the selection of assistant professors, the committee consists of three professors, one of them a member of a faculty other than the faculty advertising the vacant post.

(c) The report of each of the above committees is submitted to the faculty council for discussion and confirmation. Then it is referred to the university Senate, and if approved, is eventually endorsed by the Minister of Higher Education.

Thus, it is evident that industries and students have no share in the selection of the teaching staff.

Difficulties involved in the selection of teachers are of a human variety. Appraisal of research work varies widely from one committee to another. Bias or prejudice in the decision of some members of these committees can hardly be eliminated. The Senate gives due consideration to all these and similar errors of judgement, and any complaint from one of the candidates is thoroughly investigated and eventually rectified.

This method of promotion through the appraisal of research work has started that 'paper explosion' which is not restricted to Egypt. Prospective assistant professors or professors endeavour to increase the volume of their own publications irrespective of the quality or originality of the research work involved. Fortunately, we have still some conscientious scholars eager to achieve real research work and to establish schools of their own. But the practical necessity of doing extra work to compensate for the comparatively not-very-attractive salaries also

compels some teachers to set about getting their 'papers' published in a hurry when the time of promotion draws near. On the other hand, once they have reached the pinnacle of their career, some professors are liable to rest on their laurels and give no more heed to research work.

As a remedy, some recommendations are being discussed and elaborated. One idea has been the examination and appraisal of research work done by all members of the staff, including professors, every five years. Also prizes could be given for the best achievements in research in each faculty.

This policy of recruitment is followed by all faculties and departments of the university irrespective of their different specializations.

4. Training of young teachers and research workers and methods of evaluating their work

The policy for training young university teachers is generally initiated by members of the staff in each department. The faculty council and the Senate of the university both co-ordinate the demands of the departments and various faculties. The Ministry of Planning gives advice and suggestions, and the Treasury has its say in the allocation of funds for the expansion of the teaching staff.

Top students graduating each year are selected as candidates for training as future teachers, depending on the actual vacancies in each department. Demonstrators appointed in this way receive their training under the supervision of the staff of the department to which they belong. This training gives the student teacher the opportunity of gaining valuable experience through close contact with his professor or assistant professor, both in teaching and in doing research work. In the humanities, the usual procedure is that the professor gives the general lecture and the demonstrators work through the details of the lecture with the students, in groups of not more than forty students. In faculties where laboratory work is involved, the demonstrator assumes the role of senior student and helps students in their laboratory work. In some cases, demonstrators are exempted from teaching in order to devote their whole time to the pursuit of their post-graduate studies, culminating in a Ph. D., for this is the key to any employment on the university staff.

If the demonstrator fails to get his second degree after five years from the time of his appointment, or if he fails to get his Ph. D. after ten years from the time of his appointment as demonstrator, he is transferred to another job outside the faculty.

This exemption from teaching is a recent development, which some people think is not wholly advantageous. Teaching and reading for higher degrees at the same time place the demonstrator in a difficult position. He has the dilemma of choosing between devoting the better part of his time to teaching and lagging behind in the race for gaining appointment to the staff, or exerting himself to get the degrees which are the chief passport to the staff, but depriving himself of that valuable experience of practising teaching under the supervision and

guidance of his seniors, which in many instances is the only kind of pedagogical training a university gives its future teachers.

Some professors succeed in achieving that golden mean which enables their demonstrators to continue teaching subjects of general importance, while they are also absorbed in the narrower task of investigation and specialization which is essential to the preparation of a thesis.

Improving the qualifications of the teaching staff

Apart from this policy of giving demonstrators the opportunity of being trained as teachers as well as of being initiated into research work under supervision, each department endeavours to make post-graduate studies available not only to their demonstrators, but also to graduate students not included in the personnel of the faculty. Once they succeed in getting the required degree, they become potential candidates for positions on the staff. The Faculty of Medicine leads all other faculties in providing facilities for its demonstrators to get their final degree within the faculty. About 80 per cent of the graduates who go on to join the staff receive their training within the faculty. Whereas in the Faculty of Engineering, only 20 per cent complete their postgraduate study within the faculty.

Demonstrators who succeed in getting their second degree are eligible for study leave. They are either sent on missions financed by the Ministry of Higher Education or given the opportunity to avail themselves of scholarships offered to Egyptian students by other countries in accordance with some cultural agreements with Egypt. Cairo University has also concluded some agreements with other universities abroad according to which students who have got their second degree can stay for one year abroad to collect material for their research work leading to a degree. In that case, supervision is jointly shared by members of Cairo University and by the staff of the other university.

Apart from the published research papers and books which are submitted by members of the staff wishing to apply for higher posts or for prizes awarded for the best research work, the university adopts other means to improve the qualifications of the teaching staff:

- (a) Teachers are encouraged to participate in conferences and seminars at home and abroad. Part, and sometimes all, of the expenses incurred are paid by the university. Teachers attending these conferences or seminars have to report the proceedings to a special committee affiliated to the Senate of the university.
- (b) Teachers may also be granted study leave with pay for one year, which may be extended to two years. This grant is incorporated in agreements between Cairo University and other foreign universities relating to the exchange of professors. Any member of the staff is entitled to avail himself of this privilege every five years.
- (c) The university has concluded cultural agreements with some developed countries, in order to keep in close touch with advanced centres of research. Exchange of teachers with universities abroad helps in linking the university's schools of research with other schools all over the world. A visiting teacher

from a foreign university naturally contributes much to the knowledge of teachers as well as of students. Also, observations and suggestions from an outsider are apt, sometimes, to be more accurate and helpful than from those living in close proximity to a system who are often incapable of discerning its shortcomings.

- (d) Collaboration with industries in solving some of their problems gives teachers further scope in the practical application of their research work. They also benefit from the ample funds and material and equipment advanced by industries.
- (e) The university endeavours to acquire all the leading specialist periodicals published all over the world.

Evaluating the work of the staff

Once a teacher has been appointed, he becomes an established member of the staff and his appointment can be terminated only because of gross neglect of duty or misbehaviour. A university teacher's efficiency is assumed from the quality and volume of the research work which he publishes in scientific periodicals or in book form. A school teacher's ability to communicate with his pupils in the classroom is judged through a system of inspection, although many educationalists question the equity of this system. At a university, a system of inspection is hardly likely to be countenanced or even thought of. Perhaps for this reason, too little emphasis is often laid on the success with which the university teacher communicates with his students in the lecture room or in the laboratory. So, apart from committees sitting periodically to decide and take decisions about the appointment or promotion of teachers, or to select the best research work to be awarded prizes, the teacher's performance is not subject to close scrutiny except by the head of his department. Even then, the trend of specialization within the department means that any interference by the head of the department in the work of another professor or assistant professor would be considered an intolerable intrusion.

However, key positions in the government of the university or in government departments and leading jobs in industry are offered to university professors who have distinguished themselves as successful teachers, original research workers and active social leaders within the campus. This incentive, together with that natural inclination to compete with each other which is characteristic of people living and working in close proximity, provides an impetus to self-improvement. Yet, for those on the staff who are, by nature, neither ambitious nor scholarly, there should be another kind of incentive, either through a system of rewards and bonuses or through basing promotion on the performance of the teacher in the lecture room or laboratory and in support of student activities, side by side with his research work. Several suggestions of this kind have been made, but, as yet, nothing has been done.

Thus, the teaching ability, personal characteristics, habits of work, non-instructional service to the university, and help to students take second place when

a teacher is appointed or promoted. These criteria, which are hard to quantify, may tip the balance in favour of one of the candidates for appointment or for promotion when the candidates are equal in qualifications or in academic achievements. Also a person of an undesirable character will be debarred from appointment, in spite of his superior grades or his outstanding achievement in research.

The head of the department is responsible for the work done in his department. Yet the tendency towards over-specialization now tends to restrict his task to administrative and financial supervision. He now shares with other professors in the department the responsibility for dealing with academic affairs.

Deans of faculties are appointed by the Minister of Higher Education on the recommendation of the Rector of the university. This recommendation is usually influenced by the personal characteristics, social activities or favourable opinion of the man's colleagues. The same procedure is followed in appointing Vice-deans, where the same considerations are also respected.

TABLE 1. Number of staff and demonstrators

Faculty	Prof. (chair)	Prof.	A. Prof.	Lect.	Demon.	Total
Arts	30	14	38	62	108	252
Law	19	4	18	28	38	107
Commerce	8	1	11	15	110	145
Economics	14	—	8	17	29	68
Statistics	2	—	2	5	39	48
Science	26	20	56	75	233	410
Medicine	51	66	127	218	375	837
Nursing	—	—	—	—	31	31
Cancer	2	—	4	19	25	50
Pharmacy	7	5	10	33	93	148
Dentistry	6	1	10	27	79	123
Engineering	41	25	53	84	342	545
Agriculture	20	25	42	147	165	399
Vet. Medicine	10	7	22	38	90	167
Dar-ul-Ulum	9	7	10	20	30	76
TOTAL	249	202	411	788	1 787	3 437

Summaries of the case studies

IV. Planning of the teaching work

A. Planning of the teaching work at Humboldt University, Berlin, German Democratic Republic

*by H. Lehmann and H. J. Schulz
and a group of staff members of
the Research Institute for Higher Education and Economy*

1. Introduction: the university and the overall planning context

The German Democratic Republic (GDR), with a socialist system of overall economic and social planning, offers an excellent example of integrated university planning within clearly defined structures. Although the structures themselves may be particular to the country, the methods of planning and the techniques involved are readily adaptable to other contexts.

Humboldt University, situated in Berlin the capital of the German Democratic Republic, was founded in 1810. In 1972 there were 17,994 students at the university, of which 11,472 were full-time. It is the largest university in the country and plays an important part in the intellectual and cultural life both of the capital and the country as a whole.

Like all other institutions of education, the university is a part of the integrated socialist system of education, which is financed, planned and managed by the central government, with the participation of all citizens assured by diverse means and structures. The fundamental transformation of the social system after 1945 and three subsequent university reforms, have greatly changed the position and function of Humboldt University within the last twenty-seven years. In the first and second university reforms, important changes were brought about in higher education which ensured:

- (a) A guarantee of equal access to education. The system of privilege in education which existed formerly was abolished and children of the working classes and farmers, as well as women and girls, have been provided with favourable opportunities for admission to all educational institutions.
- (b) An education given in the spirit of peace, humanism and mutual respect between peoples based on Marxism-Leninism.
- (c) Integration of schools, universities and research into the life and progress of society. Extracts from a law voted in 1965 make this clear. The emphasis is on 'close connexion of education and training with the life of society, connexion of theory with practice, connexion of learning and study with productive activity'.

The development of universities and colleges is in the hands of the Ministry of

Higher and Technical Education, which encourages active participation among the majority of working people, university teachers and students.

The percentage of the relevant age group in higher education at university level has more than trebled over the last twenty years: from 5.0 per cent in 1950/51 to 16.7 per cent in 1970/71. Equally, the percentage of graduates has increased from 2.1 per cent to 12.5 per cent over the same period. The importance accorded to the development of higher education can be seen, among other things, from the fact that 15 per cent of the total budget for education is devoted to higher education.

The continuity of planning and administration is assured by five-year socio-economic development plans for the whole country. The development of universities and other institutions for higher education is planned within this framework, according to the socio-economic needs set out in the plan. Within the five-year plans, there are also national socio-economic plans drawn up for each year which include the targets for higher and technical education.

On these bases, long and short-term plans for higher education in all its fields are worked out under the guidance of the Minister of Higher and Technical Education. Representatives from all levels of the universities contribute to the elaboration of these plans, through the consultation of numerous university and central bodies.

The Minister subsequently issues instructions and directives to the Rectors of the universities, who are responsible for their implementation. The Rector is assisted in his work by two advisory bodies: the Social Council and the Scientific Council. The Social Council is made up of state and economic officials, representatives of social organizations, scientists, students and workers. Students are also members of the Scientific Council.

Having taken the major decisions concerning staffing and material conditions, the Rector entrusts the Directors of sections with the administration and planning of training within their own sections. There are twenty-six sections at Humboldt University, each corresponding roughly to a field of study. The Section Director is responsible for the training and education of the students enrolled in his section. The way he organizes his section is based on a syllabus prepared with his participation. He is assisted by the council of the section, the Deputy Director for Education and Training and the Head of the Department for Further Training and Part-time Study. There is, equally, at his disposal a Commission for Education and Training made up of members of the teaching staff and selected students.

2. Courses of study

Humboldt University offers all types of courses existing in the GDR; these are full-time, correspondence, evening, postgraduate, partial study and research courses. The number of students to be admitted to each type of course is fixed, taking into consideration both the demand for education and the demand for graduates.

A course of full-time studies lasts four years in the majority of disciplines and is divided into basic and specialized studies. The most common forms of training are lectures, seminars, tutorials and classes, together with practical work both inside and outside the university. Seminars and classes sometimes group together students from different years of study. During the courses tests are conducted which, together with examination results, contribute to the general assessment of the student's achievements. In the same way the overall development of the student's personality is evaluated at intervals.

Correspondence courses allow working people to follow a university education without giving up their job. The teaching programmes of correspondence studies are essentially the same as those of full-time studies in a given subject, although account is taken of the considerable experience gained by these particular students during their working time. Since the students study a good deal on their own, special manuals, study guides and other teaching materials are available to them. There are twenty full days of consultation each year at the university where the student is enrolled. The diploma awarded after a minimum of four years is the equivalent of the diploma for full-time studies.

The regulations governing correspondence studies apply equally to evening studies.

For postgraduate and supplementary studies, the length of the course varies, depending on its aim, from several months to two or three years. These courses allow students who are in full-time jobs to widen or deepen their specialized knowledge. A state certificate is awarded on completion of these studies.

Partial studies are those studies organized within the framework of correspondence or evening studies for graduates who wish to acquire additional job-related qualifications. The studies are completed in two or three years and graduates receive a state certificate in the subjects studied.

Research studies, as a training for the Doctorate degree, were introduced in 1968. They cover a maximum of three years, immediately following on after full-time studies. Both the number of research students and the studies they should follow are determined according to the national economic development plan. Selection of students by the section Directors is made according to achievement, structure of the population and the policy for the advancement of women. All research students receive state grants.

The main task of a research student is to contribute to the research work of his section and, in particular, to the collective research work group, but research studies may also be carried out in close connexion with industry and business enterprises. Forty per cent of research students' working time is devoted to teaching, the study of foreign languages and further education in Marxism-Leninism.

3. The curricula

The basic framework for studies in the universities of the GDR is a series of obligatory syllabuses issued by the state. The syllabuses are the responsibility

of the Ministry of Higher and Technical Education. Standing or temporary working committees, with the widest possible representation from the universities (including students), from the ministries concerned, and from science and industry, are entrusted with drawing up the syllabuses. They contain a catalogue of special and basic disciplines, a description of requirements, programmes of studies and general teaching programmes.

The catalogue is a list of basic disciplines and special studies.

The description of requirements gives details concerning graduates from the point of view of professional specifications, based on present and future socio-economic needs.

The programmes of studies are the most detailed part of the syllabuses. They specify object, content and methods of study in a form which serves as a basis for the organization of the teaching process at individual universities and by the individual teacher. Among other things, the objectives of each discipline are defined and a schematic representation of a course of studies showing the time and importance accorded to each subject is given. The same indications are given for each subject within a course, with the addition of more detailed information on the use of teaching aids and materials.

The general teaching programmes refer to subjects which form a compulsory part of all or of a number of basic disciplines. Their aim is to guarantee uniformity of standard among universities in these fields.

As can be seen from this account, the syllabuses constitute the principal element of implementation and control in university studies. The amount of information and guidance they offer allows all those involved in university life to plan their activities in a useful and rational manner.

It is of particular interest to note that the GDR revised and adapted university syllabuses in 1972: this, of course, is done at regular intervals. The procedure is described as follows:

- (a) Derivation of objectives, content and methods of study from the demands of society on the university graduate; guaranteeing the unity of socialist education and scientific knowledge, of theory and practice, of teaching, learning and research;
- (b) Creation of a framework of aims of study, including intermediate aims and levels and covering the complete course of studies;
- (c) Structuring of the content for the whole period of study with regard to the aims;
- (d) General planning of organizational forms taking the aims and content as methodical variants of study processes;
- (e) Determination of content of study on the principle of the interchangeability of content units;
- (f) Determination of the organizational forms of study according to the basic demand for an increase in independent student activity;
- (g) Planning of independent studies as a specified and verifiable form of study.

4. The activities of the teaching staff

The person responsible for the work of the university teachers and scientific staff is the Director of the section concerned. The staff have a forty-three-hour working week (with the exception of professors) and there are statutes which govern the amount of actual teaching carried out. 'Teachers in higher education' give up to twenty lessons a week during two terms and up to two hours of lectures per week, while university lecturers give up to sixteen lessons a week over two terms and up to four hours of lectures per week. University teachers have a certain number of obligations which are clearly defined. They are requested:

- (a) To guarantee a high level of instruction and education based on high performance in research;
- (b) To take part in the planning and managing of social processes of development, especially in planning and managing the scientific and educational work;
- (c) To estimate the trends and development in their own field of science and to draw their conclusions for research and teaching;
- (d) To maintain a high level of responsibility in forming and selecting the contents and methods of training and education;
- (e) To direct all scientific personnel in their work on research, teaching and education;
- (f) To take an active part as a teacher in all forms of studies, including examinations and courses for further qualification;
- (g) To extend their knowledge systematically.

A study of the distribution of staff time and of the distribution of time spent on different kinds of teaching has been carried out in one of the sections at the university. In the first case, it was found that, for all teachers together, the average amount of time spent on instruction was 27 per cent. This shifted slightly over the following months until the ratio between teaching, research and other activities became 1:1:1.

Of the time devoted to teaching, 50 per cent was spent in giving, preparing and evaluating lectures. In general, the staff of the section concerned felt that the amount of time given to evaluation and preparation is too low compared with that of delivering the lectures. A ratio of 1 for giving a lecture to 2 for preparing and evaluating it is considered desirable.

5. Planning student work

The basic premise underlying the organization of the teaching work at the university is that teaching and learning are indivisible. Co-operation between teachers and students is therefore a prerequisite for the successful organization of studies.

Investigation has shown that another important, and even determining, element in successful studies is that of independent study on the part of the student. Interim results of a study of student activities, made by some sections at the university, indicate that the time allocated to formal course study and to inde-

pendent study should be in the ratio of 1:1 or even 1:2. Students have expressed the desire to have at least 60 per cent of the total time-schedule of a course available for independent work.

There are some difficulties here, arising principally from the large amount of 'dead' time when students are changing from one classroom or building to another. This means that, in all, students have an average of fifty hours of study a week and between twenty-eight and thirty of these are devoted to classroom activities. The provision of a continuous period of several weeks, free of instruction, is envisaged in order to make the necessary time available for independent studies.

All students are associated as early as possible with some form of research work. The research groups are made up of students doing research work on a particular subject. In this way, senior students are available to guide the less-experienced ones. The work may take various forms, for instance, contract research with science and industry or work on specific youth projects. In this way the student learns to organize his work efficiently, to develop a problem-solving approach to it and to be responsible to his collective research group.

An important problem which requires further study is the best possible integration of the students' research work into the framework of the overall teaching programmes.

Up to the beginning of 1971 the only work done by the Humboldt University in the field of orientation of graduates towards employment was to prepare the students for their subsequent occupational activity in the final stage of their studies and to advise them in their decisions about places of work.

In the future, however, the university will assume greater responsibility in this area and preparation for working life will begin earlier. It has been noted that those sections of the university which worked out their graduate requirements in conjunction with the industries in question had the greatest success in job orientation. This system will therefore be developed along clearly defined lines.

Practical work in industry and in various institutions is required of the students from their first year of study onwards. As the student progresses through his studies, the duration of this type of work and the demands made on the student increase steadily. In some sections, the final period of practical training may last up to half a year. During this time, the student writes his diploma paper on a subject chosen in agreement with both the university and his place of work.

These practical periods allow the students to consolidate and apply the theoretical knowledge gained in university courses. Equally, they are testing out the validity and utility of this knowledge and the responsibility of the universities for the success of these courses is therefore very large. The evaluation of the student's performance is made jointly by his university tutors, who are in close contact with him throughout, and a tutor who is appointed by the enterprise where the student works.

6. Planning of classroom assignments, time-tables and teaching aids

The need to co-ordinate successfully during one planning period over five thousand teaching activities, two thousand instructors, one thousand seminar groups, and all this in five hundred classrooms, means that electronic data processing is indispensable.

The principal aims in room assignment and time-table formulation are to:

- (a) Provide coherent periods of instruction and thus coherent periods of individual study for the students;
- (b) Ensure a continuous and well-balanced teaching load for the staff;
- (c) Exclude, as far as possible, unassigned hours between classes, and loss of time through frequent moving to dispersed places of instruction; and
- (d) Provide sufficient time for social and political student and teacher activities (all university classrooms are made available for social and political activities on Mondays after 4 p. m. and on other days only if not used for teaching purposes);

The requirements to be met in achieving the above objectives are:

- (a) Optimum utilization of the time reservoir of all university classrooms available;
- (b) Assignment of classrooms in a certain order of precedence; for this purpose, teaching activities are ranked according to their importance, type (lecture, seminar, class) and the number of students participating;
- (c) Continuous and connected instruction periods per seminar group and per day—classes being limited to a maximum of six hours per day;
- (d) Maximum teaching load per teacher to be limited to six teaching hours per day;
- (e) At least one hour per day should be guaranteed for lunch: (i) for all student groups between 11 a.m. and 2p.m.; (ii) for teachers from 12 noon to 2p.m.;
- (f) Assignment of hours to teachers to the greatest extent in accordance with their own requests, and all reasonable individual demands regarding rooms, teachers or seminar groups should be met.

It has not been possible so far to meet all these demands, but it is hoped that the subordination of certain specific interests and wishes to the common aims and objectives of the university as a whole will lead to greater success in the future.

For the above purpose, the following information was collected for processing by computer:

- (a) Basic data for teaching and time-load analyses and for measures to rationalize the education and training processes, such as: the total teaching load within the university; the interconnexions between the teaching activities of individual sections; the number and type of parallel activities of similar character; the teaching load of each section; the study load of each seminar group; and the teaching load of each teacher;
- (b) Exact information on the structure and size of the groups (*Unterrichtsgruppen*) in each section and on the seminar and instruction group structure in the university as a whole;
- (c) Exact information on the total use of available rooms in the university as a

whole, as well as on the assignment and utilization of each individual classroom, and a survey of actual room reserves or room shortages specifying the room types;

- (d) Exact data for planning: admission quotas for intramural and extramural studies; investment and equipment; reconstruction work.

An operational plan to facilitate better utilization of technical teaching and learning aids was drawn up. This involved a detailed analysis of all teaching rooms having or needing little or no equipment. The equipment actually available was then checked against needs and it is significant to note that as a result it was found possible to equip 70 per cent of all teaching rooms with the necessary basic equipment without delay. This could be done by the transfer of existing available equipment.

The Department of Teaching Methods and Study Rationalization deals with problems of aims and content in the utilization of teaching and learning aids and also deals with questions of evaluation and promotes innovations. All teaching aids are available for use by students at any stage during their course.

An important and, indeed, fundamental aid to teaching and learning is the university library, which collects, evaluates and makes accessible scientific information and knowledge in its various forms. There is a central university library of which subsidiaries exist in all the sections. Central administration and co-ordination of library work has greatly increased efficiency.

7. Detailed planning of the teaching process

Detailed planning of the teaching process is the responsibility of the Rector, who delegates much of this to the Director of Education and Training. His main tasks are:

- (a) Planning and operating the teaching process on the basis of the approved syllabuses;
- (b) Organization of students' competitions and the promotion of particularly talented students in close co-operation with the Free German Youth;
- (c) Guaranteeing a high effectiveness of the teaching process;
- (d) Organizing studies efficiently;
- (e) Career advice for prospective students, admission of students, provision of jobs for graduates;
- (f) Matters of scholarship;
- (g) Organization of research studies;
- (h) Care and supervision of students at students' hostels.

Within each section there is a Deputy Director for Education and Training whose duties correspond at section level to those of the Director at university level.

A Commission for Education and Training made up of the heads of divisions, tutors and representatives of youth organizations assists the Deputy Director of the section. This is a means of ensuring the permanent co-operation of students in the planning and management of their studies.

At a further level in the university structure, the heads of divisions continue the planning of the teaching process. Taking into account the conditions prevailing in each section, they draw up the teaching programme binding on the lecturers. From then on the lecturer is responsible for planning in detail the intermediate objectives, subject matter and methods applied in his lectures, as provided for in the teaching programme.

8. Evaluation of teaching activities

Teaching is considered to be successful if it helps to produce socialist graduates well qualified in their subjects and familiar with all vital issues affecting them; successful teaching is also shown by graduates who give a good account of themselves in all spheres of social life.

The following criteria are used in the evaluation of teaching activities:

- (a) High scientific level based on successful research work and consistent with social and scientific requirements;
- (b) Application of efficient and meaningful teaching methods;
- (c) Participation in the administration and planning of educational work;
- (d) Implementation of the principle of socialist collective work.

All teaching activities of the sections are subjected to a critical analysis before the Council, when an account of the way in which the university has fulfilled the plan is given to the governing bodies.

The work of the lecturers is assessed every two years and outstanding work is encouraged and acknowledged by government distinctions. There is also a special fund at the Rector's disposal, from which he may pay bursaries for particularly distinguished work in training and education.

It has been a useful practice for lecturers to sit in on their colleagues' lectures and to evaluate them jointly. This is practised, for instance, in the sections of philosophy and chemistry. In this way efficient teaching methods are made available more quickly and are used on a wider scale, thus increasing the general efficiency of teaching.

The principal effects of teaching are naturally reflected in students' achievements which, in turn, are reflected in examination results. In evaluating the examination results, mid-term proficiency tests, such as short talks and written papers, are also taken into account.

Finally, the governing bodies of the university and the various sections continually seek to analyse the attainments of teaching staff as reflected in the students' achievements. An analysis is made at the end of each year of study in all the universities and colleges of the GDR. These analyses are reviewed and generalized to cover the whole system of higher education.

B. The teaching work at Kabul University, Afghanistan

by M. Y. Saaed and G. J. Yaftali,
Professors at the Faculty of Education, University of Kabul

1. *Kabul University: academic structure and problems*

Kabul University is Afghanistan's only university institution of higher education. It was founded in 1932 when the Afghan government established a school of medicine, and since then it has grown stage by stage, adding a new school or faculty, affiliating departments and entering into arrangements with foreign universities to help establish new faculties.

Today, the university has Faculties of Agriculture, Economics, Education, Engineering, Islamic Law, Law, Letters, Medicine, Pharmacy, Polytechnics and Sciences. Its teaching staff numbers nearly 700. The total enrolment of students, graduates and undergraduates, is a little over 7,000, of whom one in ten are women.

In 1968 a new constitution was proposed and became official by royal decree, according to which the university was to have a board composed of the Ministers of Education (chairman), Finance and Planning, the President of Kabul University, and four other members appointed by the government. There was to be also an Academic Senate composed of the President of the University, vice-presidents, deans of the faculties, presidents of institutes, two elected representatives from each faculty, and one from each institute (from among the three top academic ranks). According to this constitution, appointments and dismissals at Kabul University would be handled by the board, but promotions were to be the responsibility of the Senate.

This constitution, which was presented to the government during Parliament's annual recess, aroused considerable opposition and students began demonstrations, protesting that it was undemocratic. As a result, when Parliament reconvened, it rejected the constitution and a temporary set of regulations was drafted by a group of university teachers within a few days and was approved by the government and Parliament. The university is run on the basis of these regulations at the present time. According to these regulations, the university Senate alone is authorized to make decisions for the university, but with the approval of the Ministry of Education. The constitution which was rejected is being revised by a parliamentary sub-committee and will be submitted for reconsideration.

The nature of the revisions is not known at the time of writing, so that their effect on university problems cannot be predicted.

The university Senate is composed of the deans of the faculties, presidents of institutes, two elected members from each faculty, and one from each institute (two from the Polytechnic Institute¹). The dean of a faculty and the president of an institute are elected by the Staff Meeting for a period of two years. The President of the university is elected by the university Senate for three years.

Every academic member of a department is a member of the Department Meeting, but he may not be a member of the Staff Meeting. For example, in those faculties where there are less than seventy academic members, every member has the right to be a member of the faculty Staff Meeting; but in those faculties where the number of academic members exceeds seventy, only those who hold a rank of *Pohandoy* or higher can be a member of the Staff Meeting. (This only applies to the Faculty of Medicine at present.)

Kabul University being a governmental institution, its academic members are entitled to two systems of ranking:

- (a) *Governmental rank*: All the academic members of Kabul University, like all other governmental employees, hold a rank which ranges from the lowest (Rank 10) to the highest (Rank 1). (Cabinet ministers are outside this scale.) The rank which a governmental employee holds at his recruitment depends upon his education.
- (b) *Academic rank*: This type of rank is given exclusively to those members of Kabul University (and any other future Afghan university) who teach, do research and actively participate in other kinds of scientific activities within the university. There are six levels of academic ranks, which, from the lowest to the highest, are as follows: *pohyalay*, *pohanyar*, *pohanmal*, *pohandoy*, *pohanwal* and *pohand*. Those who join the university without prior university teaching experience must, in addition to fulfilling certain other requirements, work for a minimum probationary period of one year. Upon the successful completion of this period, the academic rank of *pohyalay* is given to those who hold B. A. or B.Sc. degrees, *pohanyar* to those who hold Masters' degrees, and *pohanmal* to those who hold Doctors' degrees.

The case study

The case study on Kabul University is primarily concerned with describing the teaching work. But before coming to summarize the case study it is important to consider a number of problems facing the university which have undoubtedly affected its academic life.

During the progressive stages of its development, the teachers at Kabul University have been trained in different countries. The differences in their background have produced variations in their teaching procedures and policies, which, in turn, have created many problems. For example, in the Faculty of Educa-

1. The Polytechnic is a separate institute, which was opened in 1967 with the help of the USSR.

tion the system of marking is different from that in the Faculty of Medicine. Problems such as this have caused many strikes within the university.

There are serious variations in the way the curriculum has developed in the different faculties, and in teaching methods. For example, in the Faculty of Education every first-year student has to take the same course (liberal education); but in the Faculty of Science students are divided into different departments as soon as they arrive. Then the hours that academic staff are required to teach vary from four to fifteen hours per week according to which faculty they are in. Perhaps the most serious problem is that students educated in such different faculties get incompatible backgrounds and find it difficult to co-operate with each other in practice. It may even be that this heterogeneity is the cause of some groups establishing themselves in government or in different organizations after students leave the university.

The solution to this problem may be to make the university an institution where all the faculties and departments have a common purpose: to train Afghans. At this university, the problem of increasing numbers of applicants has resulted in enrolling more students than the optimum capacity. While teaching staff and student enrolment have doubled in the last five years, the number of *qualified* teachers has increased little and the opportunities for study abroad have decreased. Also, there has been little expansion of laboratory facilities.

The elective system for the President of the university, deans of faculties and presidents of institutes is another cause of many problems. For instance, since the deans of faculties are elected for a term of only two years, they usually try to influence departments to select as new members those persons who might vote for the same dean in the next election. By this process, policies and the relation of the prospective teacher to the dean are more important than academic background and teaching ability. This process has made it difficult for the faculty to make decisions.

Also, teachers' salaries are very low and many teachers work part-time outside the university. For them teaching becomes a second job. They do not have time to prepare lectures properly, and much classroom time is spent over whatever the students want to discuss, which may often not be academic matters. Also, these teachers are not available outside the classroom to help and advise students. Teachers in this category usually vote for a weak dean, so that they can continue their outside work as well as keeping their position in the university.

Among the worst procedures at the university are the promotion of teachers by election, and the selection, by the Staff Meeting, of people to attend seminars in foreign countries. In either case, the choice can too easily depend on factors other than academic merit.

Despite having almost 700 teachers, Kabul University suffers from a shortage of qualified teachers. According to Kabul University regulations, those of the rank of *pohandoy* or higher, that is 23 per cent of university teachers, can teach independently. If the regulations were changed so that only those with Doctors' degrees could teach independently, then only about 10 per cent of the teachers

would be eligible. This would give some newer faculties a teacher/student ratio of less than 1:100.

Moreover, it is always very difficult to ask a person to leave the university once he has become an academic member of staff. As a result, courses have sometimes been created to accommodate a particular person, or even as a favour. Thus many personal interests have formed at the university, which strongly resist efforts at reorganization and prevent the development of a curriculum relevant to the needs of the young people and the country.

These personal influences at work in the university no doubt exert a stronger influence than might be hoped because there has been no systematic type of planning and management at the university since its establishment.

This means that the case study of Kabul University is not really a study of *planning* procedures, for as yet there is little methodical planning. On the other hand, the situation in which the university finds itself, with its problems and tensions, is a very good illustration of what a university in a developing country faces if it wishes to move towards contemporary management and planning methods.

2. Afghanistan: the country and its education system

Afghanistan is a landlocked mountainous country with a population of about 15.7 million. Its total area of 700,000 sq. miles is bordered on the north by the USSR, on the west by Iran, and on the south and east by Pakistan. In the north-east, the elongated narrow strip of Wakhan is bounded by China, India and the USSR. Thus, Afghanistan is a cultural crossroads and Afghan society is an amalgam of the various ethnic groups that reached this crossroads for different purposes at different times.

The main activity of the Afghan people is agriculture, which is the main source of income for the country.

The economic and social development of Afghanistan is based on five-year development plans. The third five-year plan started in 1967 and ended in 1972. In accordance with these five-year development plans, Afghanistan has accepted the system of a mixed and guided economy.

Afghanistan has certain important ingredients for economic development. For example, the natural resources, agricultural productivity in field crops and livestock, and potential mineral wealth are promising assets.

The second five-year plan was mainly geared to the expansion of transportation and communications, mines and industry, agriculture and irrigation.

Afghanistan's third five-year plan was formulated with the basic ideals of raising the living standard of the people. It also envisages other important objectives, i.e. a speedy increase in industrial and agricultural production, an expansion of the social services, efforts for an equitable distribution of revenues, an improvement in the balance of payments, encouraging government and private savings, and economic stability. While drafting the Third plan, the views and useful pro-

posals of the people, government officials, municipalities, the scholars of the country, as well as foreign and international experts were sought and made use of.¹

The third five-year plan calls for the development and democratization of education. Afghanistan has a system of free education from kindergarten to university.

The constitution of Afghanistan makes education a very expensive enterprise for the government. Article 34 of the Afghan constitution implies that the system of education has to be a centralized one, designed, run and financed by the Ministry of Education. Similarly teacher training, whether for village, elementary or middle schools undertaken by the Ministry of Education, or for the lycées undertaken by Kabul University, is a government affair.

Current educational enrolment in Afghanistan is 541,000 at the village and elementary school level. This figure includes 75,000 girls. The enrolment in the middle schools is 94,000 and at the lycées is 32,000.

While in 1960 only 10 per cent of school-age children (175, 664) were enrolled in the village and elementary schools of Afghanistan, this enrolment had increased to about 541,000 (30 per cent) by 1971.

With respect to a long-term plan for education, Afghanistan chose 1990 as the target year for the enrolment of all Afghan children between 7 and 14 years of age in schools.

3. The various types of teaching and learning offered by Kabul University

Kabul University offers only full-time day courses; there are no evening or correspondence courses. The university has never had part-time students or any other special status students.

As the system operates at present, neither the President of the university, nor his Vice-president for Academic Affairs, nor the deans of the faculties and their assistants possess decision-making power in organizing courses. Each department in each faculty decides which courses will be offered and who will teach them. The individual teacher has the right to agree or to refuse to teach any of the course offerings on the basis of his own specialization and qualifications.

There are three types of departments in the university: those which offer courses as a service to an entire faculty, i.e. the Department of General Sciences in the Faculty of Engineering and all the departments of the Faculty of Medicine; those which train students in a specific academic discipline or a combination of two disciplines, i.e. maths-physics and biology-chemistry in the Faculty of Education, and plant and animal sciences in the Faculty of Agriculture; and those

1. *The third five-year economic and social plan of Afghanistan*, Kabul, Education Printing House, 1967 (p. 6).

which train students in a particular field as well as render services to one or more faculties, i.e. the Department of Languages in the Faculty of Education.

As already stated, the faculties have developed under different influences which have affected their departmental structure, their teaching and learning methods, and their methods of student evaluation. The faculties can be divided accordingly into the following three categories:

Faculties with semester courses and periodic evaluation of students during the semester

(a) Faculties of Agriculture and Engineering:

These two faculties have been assisted by American advisers. Its Afghan teachers have been educated under the American system and influenced by it.

From the beginning both faculties had American professors from the University of Wyoming as teachers; therefore, all the teaching was in English for the first few years. An attempt has been made to offer first- and second-year courses in Dari; but junior, senior and fifth-year level courses are still usually taught in English, whether by Afghans or Americans.

In the early years of the contract, AID provided for each course a number of student textbooks used in American colleges. These textbooks, of course, were in English.

In these faculties, the teaching method is very much americanized. Teachers give lectures and set problems, and they have office hours for those students who do not follow lectures satisfactorily. These teachers also give quizzes, mid-term examinations and final examinations. The average of the quizzes and the mid-term examination usually determines 60 per cent of the final grade and the final examination 40 per cent.

The Faculty of Engineering arranges field trips and practical work for students in areas of the subject which are applied in Afghanistan. The Faculty of Agriculture has two experimental farms on which the students get practical experience and the teacher conducts research.

This method has been successful so far, but, when the American team leaves, these faculties may face some problems. For example, there are indications that the students might complain about not having textbooks in Dari and of having to follow the American system so closely. Neither faculty has yet taken any steps to provide textbooks in Dari.

(b) Polytechnic Institute

This is the only institution at Kabul University in which the majority of the teachers are still foreign. They teach in Russian with Afghans translating lectures for students. Afghan teachers lecture in Dari. There are some textbooks in Russian for most of the courses, but since few students understand Russian well enough, the Institute prepares duplicated notes in Dari for them. Each teacher must give at least two tests during the semester which can count from 10 to 40 per cent of the final grade.

Special classes are offered for students who have difficulties in solving problems or understanding lectures.

In the Polytechnic, as in the Faculty of Agriculture and the Faculty of Engineering, emphasis is placed on practical application rather than committing lecture notes to memory. The Polytechnic also organizes field trips and practical work in the students' fields whenever possible.

(c) Faculty of Education

The Faculty of Education functions under the leadership of Afghan educators with an American background. The teaching method of most teachers is lecture and dictation. Textbooks have been written and American textbooks translated for some courses, but teachers still must rely on their notes for most courses. In addition, the Department of Science has laboratories for physics, chemistry and biology.

In this faculty, teachers have to give quizzes and tests throughout the semester, which counts 60 per cent, and a final examination at the end of the semester, which counts 40 per cent towards the final grade. Objective and subjective type tests are given. There are no oral exams. Most students memorize their notes and repeat them in the so-called subjective examinations. Most students memorize and a few learn to apply. In some courses, teachers ask the students to write a terminal paper which counts about 20 per cent towards the final grade.

Faculties with semester courses and evaluation of students by one final examination at the end of the semester

The Faculty of Medicine in Kabul and in Nangarhar uses a semester system, but has only one final examination at the end of the semester, which may be written or oral. Oral exams were previously common, but are now losing popularity. Written tests were generally all broad questions, but now there are some teachers who give objective tests.

Teachers usually dictate and students memorize their notes or a textbook that the teacher has written (sometimes ten years previously).

There are laboratories for practical experiments and students are free to use them at any time they wish.

Faculties with full academic year courses

(a) Faculty of Sciences

In this faculty, courses are offered for nine months or one academic year. Teachers give monthly exams which count 40 per cent of the final grade in courses which do not have laboratory work and 30 per cent for courses with laboratory work; for these laboratory courses, the exams count 20 per cent. The final examination counts 50 or 60 per cent of the final grade. Tests given in this faculty are mostly of the problem-solving kind. Students should understand the text and be able to apply it, but in some courses students are still just memorizing.

In this faculty, as in the others, notes are most commonly used, there are some texts written by teachers in the faculty.

(b) Faculties of Economics, Law, Letters and Islamic Law

These faculties schedule courses for nine months and give only one final examination, which counts 100 per cent. The method of teaching is mostly dictation, but a few teachers lecture. Students memorize their notes for the final, which is made up of subjective examinations.

There have been very few books written or translated for these faculties. Students are not well enough equipped to use books written in other languages. This is one of the important reasons why their standard is lower than in other faculties.

4. Working out the curricula

Each faculty at Kabul University is a self-sufficient institution with little or no dependence on other faculties. By university regulation, each faculty is responsible for constructing and revising its own curriculum. In practice, the various departments devise their own curricula along lines which they think will best suit the objectives and functions of their parent faculties.

The curricula at Kabul University are studied from time to time by the departments and modified if necessary. Nonetheless, it should be noted that the various departments do not enjoy the same independence as the faculties. For example, all proposals made by the departments have to be considered at the Staff Meeting, and it is quite possible for some of the proposals, which the departments may think necessary, to be rejected by this meeting. The introduction of new courses has to be approved by the Senate.

However, it is rightly the individual teacher who initiates new courses and it is he who modifies the curriculum. The rationale is his. Innovation is decided by what he thinks good or bad.

Any modification and adaptation of the curriculum should be directly related to the needs of the faculty, and this need should in turn be determined by the requirements of governmental institutions outside the university. For example, some years ago, the Faculty of Education made a total change in its curriculum. Previously, the faculty had required courses in many different disciplines, including natural sciences, mathematics, languages and professional education. But a strong feeling grew up that this curriculum helped neither the graduate nor the institution in which he was going to work. As a result, the faculty was reorganized into departments in which students could specialize. This has also occurred in other faculties such as Law, Islamic Law, Agriculture, Economics, Letters and Sciences, although not to the same extent as in the Faculty of Education.

The autonomy of the faculties has aggravated the problem of the duplication of courses. The main areas of duplication are to be found in the following groups of faculties:

(a) Sciences, Engineering, Agriculture and the Polytechnic;

(b) Sciences, Education and Letters (these schools are totally or partially involved in teacher training);

(c) Economics and Law.

The only solution to the problem of duplication of courses would be the reorganization of the whole university. In this reorganization a College of Arts and Sciences might replace the Faculties of Education, Science, Economics and Letters and there would be only one department established for each discipline in this college. These departments would offer courses in their individual discipline for the college and for the professional schools of Medicine, Engineering and Agriculture. (The Polytechnic would become an independent institution.) Thus the Department of Mathematics would offer all the university's courses in maths and the department of history all the courses in history, and so on.

There has been some effort to reduce this duplication, but powerful factors set up resistance. The most important one is the affiliation with foreign universities.

The first effort was a proposal made by an American team which proposed a credit system. Since many of the members of Kabul University Senate, especially deans, were not acquainted with this concept, they feared for their projected programmes and so the proposal was rejected.

The only two decisions made by the Senate to reduce duplication have been:

(a) that the Faculty of Education should be responsible for teaching educational courses;

(b) that the English language should be taught in all faculties by the Department of Languages and the Faculty of Education.

At present, many people are interested in bringing in some form of credit system, but under a different name. The writer has proposed that the university should be reorganized into departments rather than faculties, with some professional schools. Then the credit system could be introduced very easily.

Ideas for change usually come after some sort of evaluation; indeed, theoretically, there should be some process of evaluation behind a proposed change. This evaluation tends, at present, to be done informally by a teacher who has taught or studied a course and who feels there should be changes. So he puts his proposal to the department and, if approved, it will go to the faculty committee on the curriculum. If approved by this committee, by the Staff Meeting, and then by the university Senate, the proposed change may be carried out.

We should bear in mind, however, that most new courses are created by the initiative of new teachers and not by the demand for these courses. Also, course content is more often changed according to the background and interests of the teachers than because of the need for such change.

In some faculties, the affiliated teams evaluate their own work and achievements. Recently, the work of the German team in the Faculty of Science was evaluated by a group sent out by the government of the Federal Republic of Germany.

In the university organization, there is an office under the vice-president for Academic Affairs which should study these changes in each faculty and evaluate their impact, but there has been no evidence of such activity. Information for evaluation is normally collected by the Office of Programming.

Students have no formal part in the evaluation of curriculum. But a strike, supported by a group of university teachers, is evidence of their interest in evaluation, since they asked for a fundamental change in the curriculum and also questioned its usefulness for Afghanistan.

The recent seminar on 'The practical application of higher education in Afghanistan' may also be considered an evaluation of the curriculum.

5. *Organizing the work of the teaching staff*

The teaching staff can be divided according to the two following criteria: their main responsibilities; and their academic rank.

(a) *According to the main responsibility:*

- (i) teaching staff with no administrative responsibility;
- (ii) teaching staff with administrative responsibility;
- (iii) part-time teachers who are not academic members of the university.

Group (i) includes all members of the teaching staff whose main and first duty is teaching and/or research. Group (ii) includes administrators, such as the President of the University, vice-presidents, deans, the Registrar and some other directors in the central administration of the university whose main duty is administration but who, according to the regulations, must teach at least six hours per week. Group (iii) includes persons who have never been academic members of the university, and also former academic staff who have remained in government positions outside the university for more than two years. Persons in this group are called on to teach as their services are needed.

(b) *According to academic rank:*

- (i) teaching staff who fall within the first three top academic ranks (*pohand*, *pohanwal* and *pohandoy*);
- (ii) teaching staff who fall within the second three academic ranks (*pohanmal*, *pohanyar* and *pohyalay*).

Group (i) are entitled to lecture, do independent research, conduct seminars and conferences; group (ii) are entitled to do so only under the supervision and direction of the first group of teachers, and thus their main job is to assist them. This is so in theory, but in practice the teaching staff members of the second category also teach independently in most faculties.

More than 70 per cent of courses do not have textbooks in this university, and teachers have to prepare reading notes for students. Thus a major portion of the teachers' time is spent in the preparation of notes. Since recent literature in each discipline is not available in the native languages, the teachers have to rely on foreign publications and thus make use of their remaining time for translations.

Out of 24,680 hours of faculty time available to the university each week, approximately 624 hours are devoted to research and the remaining hours are supposed to be devoted to lecture preparation, development of reading materials for courses and other teaching-learning activities.

At Kabul University, each teacher, besides being a good teacher, should have the ability to do research. Research is one of the important conditions for promotion from one academic rank to the next. Since Kabul University is trying to localize the curricula, the teachers are asked to do research of local value, to study local problems, the needs of the society and the environment. However, localizing the curricula seems to create some problems too, for it limits the activity of foreign professors in the university's academic affairs; and this in turn is not favoured by the university's young staff members who are in need of further education and resources.

No evaluation of the quality of the work done by the teaching staff has been made by the central office of the university or by the offices of the deans. Therefore, there are no indices and criteria such as may be used in other universities. The work of the individual teacher is evaluated by his colleagues every three years when he is ready for promotion from one rank to the next. In this evaluation, the success of his teaching (upon the recommendation of one or more senior members in the field), the way in which his work has developed over the three years, and research reports are considered. The teacher's work is not regularly evaluated at the end of each year, either by the faculties or by the students.

It is clear that in many faculties there is much waste of human energy. Teachers' loads are very heavy in one faculty; but some teachers in another barely teach at all; or within the same faculty some teachers carry a heavier load than they should, while some others do not teach a single course during the whole semester; it seems that such a condition is not only a waste of human energy, but of financial and economic resources as well. These problems have arisen from poor, unscientific planning and failure to define the goals and objectives of the university in general and of the faculties in particular.

6. The teaching work and its evaluation

The way and the degree to which each faculty and institute has been influenced by a foreign team has affected the development of its curriculum. Allowing for approval by the Staff Meeting and, in the case of new developments, by the Senate, each faculty department proposes its own curriculum and determines its teaching methods and instructional policies, usually without regard for financial considerations. Thus, in the Faculties of Education, Engineering and Medicine, the Staff Meetings have decided that when new teachers are going to be employed, the ratio of teachers to students should be considered by the departments; but in fact, this ratio has not yet been taken into account at all; and in the other faculties, such an idea has not even been considered.

The programmes have been developed by foreign advisors and by Afghans, most of whom are trained in fields other than education, and they tend to think that the programmes taken from the countries where they have been educated will fit in Afghanistan.

The central administration lacks the appropriate personnel for assessing the

costs of various teaching methods. A study is under way to try to remedy the situation. The overall cost per semester for those living in the dormitories is calculated to be \$375; for those who do not live in the dormitory it is \$250.

The Faculties of Agriculture, Engineering, Medicine and Science, and the Polytechnic Institute offer courses composed of two parts: lectures and laboratory; usually, for a course with four hours of lectures, there are three hours of laboratory work.

The Faculties of Education, Engineering and Medicine, and the Polytechnic Institute have also arranged seminars for their students. These seminars are conducted either by the professors of the faculty or by a visiting professor. Sometimes, the students themselves conduct seminars.

Senior students in the Faculties of Economics, Education and Letters are required to write a monograph.

In the Faculties of Agriculture, Education and Engineering, and in the Polytechnic Institute every teacher is supposed to have an office hour for helping and advising students. The Polytechnic has gone even further by arranging tutoring classes for its students.

The student load is decided by the departments. The range is from about twenty-six class hours per week in Law, to about thirty-five in Pharmacy. The average for the first three years is thirty class hours, and about twenty-four for the fifth year.

Arranging practical work experience for students is difficult. Most organizations where the students can work part-time are governmental and already have more official, full-time employees than needed. They are reluctant to take on the students. The few private organizations which need people with a university education usually select students from high schools and send them abroad for higher education.

Each faculty at Kabul University has a fixed programme of practical work. Thus the Faculty of Education requires each student to do practice teaching for eight hours a week during the last semester at the university. All Faculty of Medicine students practice for a year at the University Hospitals and other hospitals in Kabul.

The Department of Professional Education in the Faculty of Education offers the only organized course in research which includes field work.

Teachers are the most powerful element in academic affairs. Except in those faculties where there is a strong influence by a foreign team, each teacher generally chooses his own textbooks and his own laboratory programmes. Two weaknesses arise from this procedure: (a) a number of teachers finished their training many years ago, whether in Afghanistan or abroad, and they have translated the books which they used themselves at that time and are still using these same translations now without any revision; (b) those younger teachers who have graduated from Kabul University or a foreign university with a B. Sc. or a B. A. degree face the problem of mastering a foreign language or even of one of Afghanistan's official languages (Dari and Pashto). They do not possess the ability to translate from other sources or to write new materials.

Methods of scoring in examinations are also related to the background of the teachers. The diverse systems of scoring have caused many administrative and academic difficulties at the universities. It is suggested that the university should have one system of grading for all the faculties. In addition to final examinations, quizzes and tests should be given during the semester. These quizzes and tests should have two parts: objective and essay. The first should evaluate how well a student has learned facts, theories, etc.; the second should evaluate how well a student can relate and communicate what he has learned. The reason that more Kabul University teachers do not use this kind of evaluation is that its preparation takes more time than they are prepared to spend.

Evaluation of the teaching work

There are no provisions for evaluating overall teaching at Kabul University. There is no office or authority able to compare teaching in different faculties.

The work of the individual teacher is supposedly evaluated at the time of his promotion. When a person with a Bachelor's or Master's degree becomes an academic member of the university, he usually has to teach under the supervision of a *pohand*, *pohanwal* or *pohandoy*. This direct supervision enables his adviser to evaluate his work at the end of the academic year or at the time of his promotion. However, advisers are usually reluctant to give bad reports. Furthermore, what methods or procedures are there to evaluate the performance of teachers who meet their classes a few times, read a few pages of notes for their students, and then at the end of the year give the students an essay examination? What dean, elected by a narrow margin and campaigning for the next election, will take serious steps to obtain such evaluation?

There is also no regular or systematic evaluation of materials taught. Each teacher teaches what he wants. His materials may relate to the title of the course, but there is no evaluation of their relation to the objectives of the course. A teacher may collect his notes together to form a textbook for a course, which a committee of two specialists in that field is selected to evaluate for its usefulness. If approved, the book is sent to the university Research Centre. A committee in the Research Centre assesses the quality and value of the book for the purpose of payment and then gives permission for its publication.

Student performance is evaluated in each course by the teacher. Methods vary from faculty to faculty and have already been discussed.

7. The work of the students

Student placement at Kabul University is determined by scores obtained in selected parts of the university entrance examination and preferences stated during the administration of the examination. The large majority of students prefer those faculties which they feel will provide best for their future economic security. Of 4,300 applicants for university admission last year, almost half

wished to be enrolled in either the Faculty of Medicine or the Faculty of Law. Other preferences, ranked in order, were for Engineering, Economics and Medicine (Nangarhar). Those students who score high on subjects related to their preferred faculties get places in these faculties. The university has no choice but to place the rest according to their subject scores so as to fill the quota set for each faculty by its dean. Otherwise, there would be no candidates for the Faculties of Sciences and Letters, for example.

On joining the university, some students are eligible to live in a dormitory. Living in a dormitory is a privilege for the student because he gets a free room, laundry facilities and is located close to classes, and is still entitled to the monthly allowance given to all students. The allowance increases as the student progresses from one class to the next.

Academic programmes are arranged by the teachers in the departments, and their class schedules are arranged by the Academic Director of each faculty. Students are given the right of having their schedules rearranged, to a certain extent.

The Director of Academic Affairs is also responsible for arranging the schedule for the final examinations. This schedule is arranged a week or two before the final examination and again the students have the right to ask for changes.

The administration of the final examinations has come to be the most important event at Kabul University. The university administration is very concerned about the security aspect of examinations and their proper handling. Sometimes there are more proctors than students in an examination room and the students are watched very closely. At Kabul University the final examination grade seems the most important element in the course and the goal of all learning. The close watch kept by proctors during final examinations makes the students feel all the more that they are not trusted by their teachers and the administration. The Department of Professional Education at the Faculty of Education has tried to shift students' preoccupation with the final grade in a course to the learning process by having the students write papers and by giving them some take-home tests.

The students seem more interested in and agreeable to this procedure. Student involvement is restricted in the area of academic affairs. In non-academic activities there is more student involvement. In 1971 the students organized a Students' Union. But at the time of writing the Union had not been officially recognized and its decisions and resolutions have as yet had no effect on university administrative action.

8. The utilization of teaching space and facilities

Kabul University is at present divided between three campuses, one of them at Nangarhar.

These campuses operate independently of each other as far as the utilization of teaching space is concerned. For example, all the programmes of the Faculty of Medicine at Nangarhar are made by the Office of the Dean. This campus has a

library, its own laboratories, and a hospital which the students can visit and work in during their seventh year of studies.

Classrooms and other facilities are divided among the faculties through the Office of Programmes and by a committee composed of the members of the faculties involved. Each faculty is responsible for its own facilities and these are available only to its own students. This system has led to inefficient utilization of classrooms and other facilities. Of course, there are no evening classes to make additional use of classrooms. Each faculty has its own laboratories and facilities, an arrangement which produces much duplication. The Faculties of Engineering, Education and Sciences have similar chemistry laboratories. The Faculties of Education and Letters both have language laboratories which are not in full use.

Kabul University Library is the most important source of teaching aids, such as books, magazines and scientific papers. This library is located on the main campus and there are about 97,000 books in it. The library receives 270 journals every month and twenty-five newspapers every day. These books and periodicals are available in the library and they are in more than eight languages.

There is an increasing use of the library from year to year.

The major problem that the students face in using the library at the present time is that they can find little literature in their native languages. On the other hand, most of them are not sufficiently familiar with the main foreign languages to be able to use books and literature in these languages.

9. Suggestions for changes at Kabul University

The time has surely come for Kabul University to begin a general reformation. There are many areas and aspects of the university which should be reorganized, some of them academic, some political, some administrative and some to do with the system of higher education in the country of which the university is the centre.

(a) Academic matters

- (i) The faculty system of Kabul University should be changed. A departmentalized General College (arts and sciences) and a few professional schools (agriculture, engineering and medicine) would be sufficient for the country's present needs. The Polytechnic Institute should become a completely independent institution.
- (ii) The credit system should be introduced at Kabul University and the community colleges (see below). With proper supervision, the credit system would facilitate transfers between the various parts of the university and between areas within the main campus.
- (iii) Teachers whose services are no longer needed should be dismissed by the President on the suggestion of the department head and the dean, rather than through the difficult procedure now required. Teachers who waste the students' time as well as their own should be assigned to other jobs. It is time to forget those teachers who have made permanent notes for a lifetime teaching career and to let the younger ones utilize their knowledge. The money

saved by these changes could be used to train more teachers in the fields which are most needed by the university.

(b) Administrative matters

(i) The salaries of the administrative staff of the university amount to a large expense. A study is needed to find out how much work is done in each section and then the number of administrative staff should be fixed accordingly. For instance, over a period of three years the Minister of Education has appointed various committees to see if it is necessary to maintain the Institute of Education as a university organ. Yet the study and evaluation of the Institute seems to have no end nor any results.

(ii) What are the barriers that prevent the dissolution of an institute at the university? The most important reason seems to be psychological, in the sense that the officials of the university and of the Ministry of Education are afraid of being discredited by dissolving an institute already in existence. The other reason for not doing so may be budgetary and financial. The budget of Kabul University comes from the government on the basis of its present organization. If a part of the organization were disassociated from the university, the budget would be reduced and the whole budget of the university would be affected.

(iii) There are many jobs at the university which could be performed by dormitory students during their free time. They could help in the preparation of food, in its distribution, and in many other activities which would save the university a lot of money. Students have felt up to now that such physical tasks were beneath them. It is time to rid them of this out-dated notion.

(c) Planning higher education

(i) Thorough research should be initiated into Afghanistan's needs and capabilities in the field of higher education in order to draw up a long-range plan to guide the development and objectives of Kabul University and any future institutions.

(ii) Community colleges should be opened in the provinces according to a well-prepared plan. These colleges would form the foundations for new universities in Afghanistan, but in the beginning they would be part of Kabul University. Students in the provinces should attend these community colleges for two years, and the better students should then be allowed to continue their studies at Kabul University.

All these changes are suggested for creating a more stable situation at Kabul University in which effective steps can be taken to improve the planning of the teaching work.

As it is, energies and talents which could be used in planning the improvement of all phases of the university's activities are spent merely on keeping classes open and the university in existence.

C. The teaching work at the National University of Cuyo, Argentina

by M. E. Morey de Verstraete,
*Director of the Service of Integral Planning,
National University of Cuyo*

1. *The National University of Cuyo*

When the National University of Cuyo was established in 1939 it was felt to answer 'a legitimate anxiousness repeatedly shown by these three provinces of Cuyo': the provinces of Mendoza, San Juan and San Luis. The new university would serve to open new horizons to youth, either to form the technicians and professionals necessary to the economic and commercial development of the region, or to encourage them to undertake higher studies, and so create in each of these provincial capitals a greater interest in science, the arts, and problems of culture.

During 1946-50 the academic structure of the university was strengthened; some of its institutes and schools were transformed into faculties and colleges, the range of disciplines was enlarged, and the general level of studies was raised.

By 1971 the university had grown to a total of 7,600 students, 880 professors, 1,450 research officers and teaching and research assistants; and 314 administrative and technical staff. Its academic structure consisted of nine faculties, two superior schools and a department, and eight dependent establishments of secondary education to prepare students wishing to enter the university:

(a) *Mendoza* (4,500 students or 59 per cent of enrolment)

(i) Faculties of Agricultural Science, Economics, Medicine, Political and Social Sciences, Philosophy and Literature, and Petrol Engineering;

(ii) Department of Scenic Art and Choreography;

(iii) School of Music;

(iv) School of Art;

Secondary education

(v) Central University College;

(vi) School of Agriculture;

(vii) Commercial school;

(viii) Teacher-training school;¹

(ix) Agricultural and wine-making college;

1. Serving primary and pre-primary school.

- (b) *San Juan* (1,700 students or 23 per cent)
 - (i) Faculty of Engineering and Exact, Physical and Natural Sciences;
Secondary education
 - (ii) Commercial school;
 - (iii) Industrial schools;
- (c) *San Luis* (1,300 students or 18 per cent)
 - (i) Faculty of Physics, Chemistry and Mathematical Sciences;
 - (ii) Faculty of Teaching and Psychology;
Secondary education
 - (iii) Teacher-training school

The following are the governing bodies of the university:

- (a) *The Assembly* is composed of the Rector, deans and all members of academic boards. It must approve all reforms of the statutes, and elects or suspends the Rector and deans.
- (b) *The Rector* represents and supervises the university and is responsible for its administration and for the execution of all the resolutions of the University Assembly and of the Superior Council.
- (c) *The Superior Council* consists of the Rector and the deans. It is responsible for planning and organizing all the university's academic activities, and for modifying and approving the budget.
- (d) *The faculties* operate under the direction of:
 - Academic councils* composed of the dean and the advising professors; they possess legislative and elective functions in relation to academic activities, the faculty, and the admission of students;
 - Deans*, who represent and administer the faculties.

The university has a number of auxiliary services; among them an *Educational Information Centre*; *Students' Aid and Welfare*; *Advisory and Management Services*, which include planning and management efficiency; and *Extension Services*, which develop themes of interest to the community.

Academic organization

The academic part of the university is composed of faculties and superior schools. The academic organization is formed of:

- (a) *Chairs*: the teaching units. They are composed of a full professor, associate professors, heads of practical work sections, assistants and other auxiliary teaching staff. The dean of the teaching unit is a full professor.
- (b) *Institutes*: the units of research. They also assist and advise on research projects undertaken by students or post-graduates. Each institute is under the authority of a director.
- (c) *Departments*: generally unite chairs and institutes of a related nature, co-ordinating the teaching and research. Departments are under the authority of a director, who in most cases is a full professor.

Several types of organization are to be seen in the institutes, faculties, schools and departments. Some faculties have an internal departmental system, and all

professors and research institutes depend on their corresponding departments. In other cases, departmentalization affects only teaching units and the research institutes function independently. And finally there are faculties which are not organized into departments and whose structure is composed of chairs on whom research institutes depend in some cases.

Generally, the courses given in the National University of Cuyo are mainly 'basic'. Of the thirty-one main courses, twenty last for five years, seven for six or seven years and the remainder for three or four years. The longest courses are medicine and engineering.

In order to enter the university, a student must have completed his secondary studies and pass an entrance course or examination. The number of students enrolled in each main branch of study in 1971 was as shown in Table 1. The secondary education institutions had, in 1971, 6,800 students.

TABLE 1. Student enrolment, 1971

Branch	Number of students	Percentage
Pure Sciences	281	3.5
Architecture	183	2.3
Technology	1 933	25.5
Medical Sciences	1 442	19.2
Agriculture	446	6.1
Humanities	949	12.6
Fine Arts	448	5.8
Education	304	4.0
Social Sciences	1 575	21.0
TOTAL	7 579	100.0

About 93 per cent of the students at the university come from the provinces of Cuyo; 70 per cent of them from Mendoza. The faculties and superior schools located in Mendoza receive over 90 per cent of their students from that province.

2. Planning higher education in the Republic of Argentina

For information about:

- (a) the Republic of Argentina;
- (b) the National Development Council;
- (c) educational planning; and
- (d) higher education, including the Council of Rectors

see 'The formation of the teaching staff at the University of the South', by Alberto Fregosi Schilling on page 203 of this volume.

3. Academic work at the university

According to university statutes, the Superior Council is responsible for 'structuring the general planning of the university's activities', while the Rector has the duty of 'directing the general planning of the university'.

In relation to the teaching work, the Superior Council has to:

- (a) Determine the general orientation of the university's education and confirm the curricula;
- (b) Decide on proposals for the appointment or dismissal of ordinary teaching or research staff;
- (c) Establish priorities of professions, specialties and areas to be developed;
- (d) Decide on the creation or closing of institutes or schools;
- (e) Establish general rules regulating students' enrolment and their length of stay;
- (f) Lay down the basic rules and regulations on: academic organization, teaching, research, teacher training, special activities of the teaching staff and examinations.

The university's planning mechanism was strengthened in 1968 with the creation, as a dependency of the Rectorate, of the Service of Integral Planning of University Education, to 'prepare a diagnosis, programming, evaluation and integral re-planning of the university's education'. This service has the responsibility for the technical aspects of planning the teaching, administrative, financial and physical aspects of the university; for co-ordinating these plans with the regional plans for Cuyo's development; for evaluating and revising plans as they develop.

Up to the present time the Planning Service has pursued its activities mainly in the academic area, helping and complementing the functions of the Academic Secretariat, which has no technical personnel for such work.

Planning at faculty and superior school level

In each faculty and superior school, the academic secretaries, technical secretaries or teaching advisers carry out work on planning, advising and co-ordinating all teaching activities. With the concurrence of the Superior Council, the academic or school councils are responsible for approving the plans of study, for the creation and discontinuation of courses and for defining the conditions of recruitment of staff and for their selection.

All full professors are responsible for their teaching; they are obliged to do research, to collaborate in the university's affairs and to aid students. They direct studies and research in their subjects and prepare the appropriate programmes. At the end of each study cycle, they have to submit a report on the work done and on academic activities during the period.

Planning of research at the University of Cuyo

In 1967 the Research Commission was established under the supervision of the

Academic Affairs Secretariat. This commission advises the Rector on general research policy, on the type of research suited to the university and staff, on the distribution of grants for research training and subsidies for research work, and on co-operation between university research workers and other institutions.

The commission is composed of a delegate from each faculty, designated by the dean, preferably from among the full-time research workers. Recently, it has assumed the responsibility for co-ordinating the report to the National Scientific and Technological Council about the research projects which require financing.

Problems of academic planning

Though directives, objectives and policies emanate from the National Planning System, the academic autonomy of the universities has been a major obstacle in their effective incorporation into the planning system. And the university planning service encounters great difficulty in its work due to the absence of common objectives and policies.

The organization of the faculties, which function as isolated entities, is an obstacle to university unity. The collection and processing of information on academic affairs, organization, financial and physical resources, teaching and non-teaching staff, students and graduates, generally lacks uniformity and exactness. These grave difficulties obstruct the evaluation of the teaching work of the university as a whole.

In order to obtain reliable information about students, questionnaires have been sent to postulants and students, which have been established in a standard form for all universities by the Council of Rectors, after meetings with the heads of Departments of Statistics. A Programme of National University Statistics has resulted from these meetings and this includes the minimum information to be collected and published by universities on students, teachers, and financial, physical and administrative resources.

Staff vacancies are filled in the majority of cases by means of a concourse which considers previous work and rank. Once in the post, the professor is established and unmovable. The university's planning authorities do not participate in forecasting the need for staff; this is the responsibility of each faculty. Nor do the university authorities plan the priorities for the promotion of specializations in particular areas; and they do not evaluate the results of programmes, or of staff training courses.

To gain a chair, the applicant must have the corresponding professional title or qualification in that field, but he does not require any special pedagogical training. The university itself does not systematically organize courses for this purpose, and there is no department of pedagogy in the university to help promote the pedagogical standards of the staff. A large percentage of professors have attended refresher or specialized courses abroad, but there are few university or faculty projects of this kind.

The University Law prescribes that 50 per cent of the staff should hold 'exclu-

sive' contracts, which means that they devote the maximum amount of their time to teaching and research at the university. The University of Cuyo, exceptionally, had 74 per cent of its staff in 1969 on an exclusive or part-time basis. Professors have a contract specifying service in one particular subject of a faculty. The university, as well as the faculties, have set norms for each type of contract, but no general system of staff control and evaluation has been set up.

The creation of new courses requires the approval of the Council of Rectors of National Universities. Any project for a new course must be accompanied by studies justifying the need, including details of:

- (i) availability and demand for human resources in the new field;
- (ii) needs attendant on creation of course;
- (iii) academic organization foreseen;
- (iv) financial resources available;
- (v) adequate curriculum to produce type of professional desired.

Unfortunately in the Cuyo region studies establishing the magnitude of future demand for university graduates in relation to socio-economic development are not available.

The formulation of plans of study for different courses and subsequent modifications are carried out at faculty level. The procedure to be followed has not been formalized. Neither is uniform information given to the Superior Council for evaluation, since the faculties usually omit to state the general objectives of plans of study, particular objectives of different types of assignments, minimum content, proportion between theory and practice, etc. This makes it difficult to establish interdisciplinary co-ordination between faculties. The evaluation of the programme of work is done only in exceptional cases at faculty level; in general, it is left to the department.

The university budget is not increasing at the same rate as the increase in academic, physical and other requirements. In fact, in real terms, it has decreased in recent years. Even though confronted with this situation, up to the present no systematic work on the rationalization and distribution of resources has been carried out. Suggestions for introducing programmed budgeting have only recently been raised and in some cases are being tentatively applied.

4. Organization of the teaching process

The National University of Cuyo is structured into faculties or superior schools. These offer courses which are organized as study years; in three cases, the study years are divided into a basic and a specialist cycle, each being spread over two or three years. The specialist cycle is longer than the basic cycle. Very few plans of study have optional classes.

The university statutes specify that basic subjects and professional specialist subjects are to be given, and, to avoid a narrow training, fundamental subjects for cultural training are to be included. This is reflected in the inclusion of philosophical or general subjects in nearly all the courses, whether technical or not.

Nevertheless, specific tuition in each subject takes precedence over general training, and specialist training over interdisciplinary studies. No express priority has been laid down at the National University of Cuyo for either technical or professional courses; the university is still limited to the traditional courses. Generally speaking, all the faculties are treated equally as regards their importance and the subjects they teach.

At the National University of Cuyo, entry requirements are the responsibility of the individual faculties. Planning meetings held at Rectorate level to agree upon a common entry system for all courses and faculties were not successful.

Entry requirements can consist of an examination or of a course. The examination may or may not be preceded by a course given by the faculty; in some cases a course is given with periodic appraisal but no final examination. Depending upon the faculty, there may be one, two or three opportunities to enter per year. Admission is valid only in respect of the faculty applied for.

The pre-university courses have the following objectives:

- (i) to equalize the knowledge of the candidates for entry;
- (ii) to adapt the candidates' knowledge to the pursuit of university studies;
- (iii) to influence candidates, in some cases, in their choice of future vocation;
- (iv) to make up for the deficiencies of secondary education.

The result of introducing the entry examination has been an improved performance in the first year. Fewer drop-outs and more regular promotions have been noted in those faculties giving courses to consolidate basic knowledge.

The university has three types of students: regular, vocational and free. Regular students are those who enrol in a faculty or superior school for the purpose of completing a course. Student status is lost 'when at the end of a year, for no good reason, the student does not pass at least one subject or its equivalent in the study plan'.

Vocational students are graduates or students of other university courses who want to broaden their knowledge and who take subjects or groups of subjects without pursuing the full course concerned. Free students are admitted only exceptionally; they are not required to attend theoretical and practical classes and their examinations are 'more exhaustive than those required for regular students'. The university also admits students who have pursued part of their university studies abroad. Almost all the faculties offer the possibility of obtaining the degree of Doctor through courses which are not fixed but vary in content and duration from one year to another. There exists a Department of Graduates, at Rectorate level, to stimulate, systematize and institutionalize graduate training at the university.

Responsibility for fulfilling the university's teaching mission lies with the Rector and the Superior Council. Nevertheless, the way in which university autonomy is understood has the effect of leaving the faculties and their chairs with almost the whole task of organizing the teaching. This academic organization by faculties and courses involves a number of disadvantages:

- (i) duplication of subjects;
- (ii) lack of flexibility in the utilization of courses;

- (iii) higher costs;
- (iv) and dispersal of effort.

One of the main problems of this university with regard to the type of education it offers is the lack of diversification in the traditional courses. In recent years some new courses have been introduced, such as sociology, design and business administration, but the innovatory machinery is slow. The university offers only yearly or six-month courses, with teaching based on staff/student contact through theoretical and practical classes. The rhythm and content of the tuition are decided upon by the holder of the professorial chair.

Curricular planning

Study plans for the various courses, and any modifications, are approved by the Superior Council, on the proposals of the faculties. The process of formulating these plans varies from one faculty to another. Occasionally, special advisory committees are set up, consisting of professors in the various areas or departments of the faculty. Individual teachers may or may not be consulted. The Superior Council does not require, before giving its approval, to see stated objectives, content, any system of correlations or equivalents, or forecasts of staff requirements or allocation.

The study plans of other universities (American and European) provide the most important part of the basis on which plans of this university are formulated, together with the views and demands of the university's own staff and students.

The draft plan, with all background material, is then considered by the tuition committee of the academic council, which not only has the authority to modify study plans but can consider anything concerned with the academic activity of the faculty. It therefore concerns itself with:

- (i) the implementation of entry systems;
- (ii) the structuring of the tuition, promotion and appraisal system;
- (iii) the programming of teaching and student activity;
- (iv) the contracting and appointment of professors;
- (v) the system and procedures for competitions.

Having examined the background material, the tuition committee issues a written report to the academic council for its decision. New study plans approved by the academic council are submitted to the Superior Council of the university for final approval. Arrangements have recently been made for the planning department to participate within the faculties at the very outset in the formulation of study plans, in order to ensure that all the formal requirements of the plan have been allowed for.

In formulating study plans all faculties and higher schools take account of career requirements, but very little account of the human, financial and physical resources available.

Although more than half the faculties and higher schools of the university revise their study plans with a view to updating them, they do so only occasionally. In no case are there any rules for updating study plans. On the question of basing

tuition content and methods on the latest results of scientific research, the professorial chair has the initiative but there are no institutional arrangements for ensuring this. However, the criterion is increasingly that every programme should be made up, not simply as a result of the accumulation of content, but with a methodological orientation designed to encourage a scientific and professional approach.

Various changes have been made to the university's existing curricula over the last ten years. Their more conspicuous aspects have been to broaden the field of work, to satisfy the requirements of industry, and to incorporate new scientific and technological topics.

Organization of the work of the teaching staff

There are distinctive categories of professors according to the role they play in the teaching work. These may be full, associate, assistant or consultant. The time which they dedicate to their work may range from a 'simple' commitment with obligations which vary from one faculty to another; 'part-time' with an obligation of twenty-five hours per week distributed between lectures, tutorials and other activities; and 'exclusive' with an obligation of forty-five hours per week. Only three of the faculties have general rules for the allocation of staff time, according to category and level of commitment, among classes, seminars, student counselling, supervision of theses, special committees or public services. Such decisions are basically taken by the individual staff member. Nevertheless in some study centres the dean or director supervises the fulfilment of these requirements especially for staff with exclusive, full-time and part-time commitment, e.g. in the case of the Faculty of Political and Social Science, the head of the department decides how much time staff should devote to research in relation to teaching. Full-time staff are expected to engage in both teaching and research. Their teaching load is normally one or two subjects, and very occasionally three. The number of classes per subject per week varies between two and five. Remuneration does not vary according to the different teaching load in the various subjects.

Five study centres evaluate the quality of their teaching work, but on a haphazard basis. All study centres check the time devoted by academic staff to their activities, particularly to class work. There is less of a check on seminars, student consultation, supervision of theses, and research. All but two of the study centres require some type of report from academic staff on their work and results. There is no other method of control or appraisal of the work of the academic staff, except for those who have attained chairs by competition and are required by the university law to present a report every three years on achievements over that period and must undergo appraisal to be able to retain the chair.

In addition to teaching and research duties, professors are required to join examining boards, to adjudicate in competitions, to join the academic council, if elected, and to take part in special committees at the discretion of the dean covering such matters as entrance, grants, regulations, budget, etc.

But essentially a professor's chair is under his supervision alone and to this extent he organizes his own time and is responsible for his own work.

Staff pursue research in accordance with personal interests. In a few cases, they expressly seek topics known to be of value to the community, or in regional or national development plans. Nevertheless, personal initiatives too can be of genuine value and, if they are in the agricultural sciences, medicine and engineering, they fall within priority areas. Furthermore, first steps in research planning are now being taken, not merely at university level but at national level.

Organization of student work

With regard to academic activities, all faculties have established times for theoretical and practical classes, and for seminar and study obligations. It is always assumed that students devote time to individual study. Students are required, as their course develops, to attend compulsory practical classes. More than half the study centres require an intensive professional training of their students. Attendance at classes varies from twenty-five to thirty-five hours per week. As regards the allocation of academic activities to students, this is the responsibility of the authorities in the faculty concerned and there has been only one recent case in which the students participated in the decision. Students used to participate in university government until 1966. Under the present regulations, they are entitled to attend and speak at the academic councils of the faculties and at the Superior Council, but not to vote.

According to the 1968 census 39 per cent of the students at the university are in employment. This is generally for half of the day; 71 per cent state that their employment is related to their studies.

Generally speaking there are no printed 'syllabuses' or lecture notes at the university. The student works from his own class notes and from books, which may be in Spanish or in foreign languages. The student's workload is not calculated either at faculty level or at individual subject level in order to establish the rhythm of teaching and the number of assignments a student can carry per year. All this influences the rate of study. In practice, it is found that almost all students go on studying for their examinations during the vacations, and that courses are prolonged in more than 90 per cent of cases. This lack of planning of the student workload adds substantially to tuition costs. It brings about discrepancies between the supposed and actual duration of the courses and also makes it difficult for tutors to get the students to participate in class as this presupposes, *inter alia*, that the student is keeping up; but it is usually impossible to keep up in all subjects simultaneously if the work load has not been well calculated and planned.

The general organization of the teaching process must be approved by the Academic Council. The basic programmes are worked out by the Dean in conjunction with the Academic Secretary of the Faculty and they are then studied by the Teaching Committee of the Council.

The type of teaching used varies according to the subject. Lectures, practical work, seminar, colloquium, guided study, and so on, may be used. It is not

considered that there is an optimum proportion between these but one or other form may be more intensively used according to the type of course.

In general, lectures predominate for the theoretical part, and then sessions of practical work give the students the opportunity to apply this knowledge. Attendance is not obligatory for the theoretical classes. Attendance and success in the examinations of the practical work is sufficient for the student to be recognized as a regular student of the university.

Almost all the faculties also count off-campus experience as part of the student's training. This type of experience gives the student direct contact with his future work. In the majority of cases this experience is integrated into the course as an obligatory activity which is evaluated and counts towards promotion or a degree. The work is generally directed by a full professor or in some cases by the head of the relevant department.

Half of the faculties set the participation of students in research work among the objectives of their plans of study, above all at the higher level. As from 1966, teaching of students was excluded from the workload of Research Assistants in the Institutes and this has meant that students participate little in the research done in the Faculties. However, in engineering and medicine, students participate in solving problems from the first year onwards.

Guided study and seminars are most frequently used in the final part of the university course. They demand written work and participation of the students in discussions which serve to show ability to elaborate an argument and to criticize. This type of teaching is also much used in post-graduate courses.

The method most commonly used to evaluate the effectiveness of the teaching is meetings of the teaching staff within the individual chairs, and meetings of professors within the same field. To a much lesser extent students have evaluated the success of the teaching, and in a very few cases, there was a statistical check on examination results. Attempts to improve teaching methods in class have had the general objective of improving contact with and the participation of students, giving more scope for their concerns and stimulating greater personal contribution.

Staff/student relations are promoted through practical classes, discussions, round-tables and individual interviews, although they are also promoted to some extent through the theoretical classes. On the other hand relationships between tutor and student are not promoted to the same extent by joint research, since students do not very often take part in this. In the relationship between tutor and student, the basic objective is to offer advice as to methods, and then as to the interpretation of texts. The great majority of staff feel that individual differences of students principally influence the teaching and evaluation systems. Student opinion influences whether particular topics are included in or excluded from the programmes.

There is little variation in the *promotion* system at the university. Where promotion is annual, the condition for enrolling in the subsequent year is to have passed in a portion of the subjects of the immediately preceding year. Thus, it can happen that a student enrolled in the fifth year must still pass subjects left over from the first year. The student is not required to take all subjects together at the end of the

year. He is offered the possibility of taking the final subject examinations in more than one examination 'shift'. An academic year contains between three and seven subjects, and the student can sit for the final examination of these at whatever session he prefers.

Final examinations take place before tribunals made up of three professors of related subjects in the faculty. The general pass rate at the university is low. There are high drop-out rates and the duration of the course is often prolonged. The latter phenomenon is so widespread that a student who completes his studies within the theoretical time-limit is regarded as exceptional.

Evaluation by means of final examinations occurs in all faculties and higher schools, although not in all subjects. It should be noted that in the majority of the study centres some subjects are evaluated by means of direct contact with the student in seminars, practical and research work, or essays. In some faculties there are few disciplines in which attendance by itself is sufficient. Oral final examinations are usual. Written finals are less frequent, although they are set in almost half the cases. Tests of the student's reading, essays and practical work are used to a lesser extent as methods of evaluation.

The most usual method for the final examination is to divide up the subject programme into chapters or parts or groups of content, corresponding to what are called *bolillas*. The student chooses two subjects at random on which he is examined.

Asked which of the aspects evaluated are considered most important, a majority of professors in all areas quoted the theoretical and practical knowledge acquired and the capacity to correlate and integrate knowledge. Many professors believe that the final examination should be discontinued and replaced by evaluation based on tests, orals, applied work, etc., taking account not only of the intellectual ability but also of the skills, abilities and behavioural approach acquired by the student.

Working out the timetable

In all cases this is the responsibility of the academic secretariat, although in some cases members of the academic staff indicate the hours available in order to be able to accommodate their other activities.

The criteria for timetabling vary according to the faculty or higher school. The basic constraints are that theoretical classes are given only in the evenings, and as students generally work for half the day, practical hours need to be grouped together.

Every effort is made to combine class hours into half the day, to facilitate the student's own study and to cater to those with jobs. The time of the academic staff is also respected. Grouping the subjects into terms simplifies matters for the students. It also leaves the academic staff with half the year free for study, research and other academic activities.

Methods of evaluating teaching work

The University of Cuyo has not carried out any systematic studies aimed at ensuring that the objectives of the university are being realized. Nevertheless there are indirect indicators for such an evaluation.

As to the quality of the teaching staff, the university seeks the best staff to be found in the community, and when this is in short supply, it appoints from elsewhere, although the need to look outside is constantly diminishing. The great majority of the professors have studied for many years before being given full status, completing their education with appointments in university centres abroad. Higher salaries, and the concomitant requirement for longer hours, have produced a staff with a fuller commitment to teaching and study. The volume of publications by university staff is substantial when one considers articles in institutional journals. But the number of books published in commercial editions is much lower.

Assessing the teaching work from the standpoint of student achievements, consideration must first be given to their examination pass rates. An average of 60 per cent of students exceed the time set to complete their courses. With regard to the number graduating, the rate is very low which indicates a substantial drop-out. There are no indicators for assessing the quality of the students' general preparation, since no such studies have been made at the university level.

On the question of the graduates' preparation and adaptability for the working environment, local business opinion has suggested that they have sometimes shown evidence of a theoretical approach at the beginning so that a period of adaptation, with the costs this implies, has been necessary.

But the impact of educational extension in the Cuyo environment has been considerable. The setting up of the Higher School of Music thirty years ago has led to a total musical transformation in the Mendoza scene. Petroleum engineering has greatly contributed to replacing foreign technical experts with Argentinian professionals in the oil companies. Medicine, producing highly qualified researchers and practitioners, has over a few years changed the situation so that the physicians serving the population of Cuyo are no longer obliged to take a sometimes poor quality training at overpopulated universities in other provinces. The economics faculty has trained many of the professional men in key positions in government and industry for the economy of Cuyo.

Systematic studies to evaluate the action of the university remain to be carried out. Who should make the evaluation? At what level? What indices, characteristics, mathematical models should be utilized which include the quantitative and qualitative aspects? All these questions remain to be answered.

D. Development of the teaching work in the Faculty of Arts, University of Barcelona, Spain

by M. Siguan Soler,
*Director of the Institute of Educational Sciences,
University of Barcelona*

1. Introduction

In the course of thirty years, the Arts Faculty of the University of Barcelona has experienced very important changes in its structure and in its plans of study.

The present report attempts to describe these changes, but, above all, it attempts to clarify the motives behind these changes and the processes which have led to their realization. We suppose that a better understanding of these processes could make the planning of university development easier.

Thirty years ago the Arts Faculty of Barcelona, like any other arts faculty, attempted to offer its students a general education in the humanities and prepare them at the same time for research or teaching in the wide fields of what are known as the sciences of the mind: philosophy, history, philology. The total number of students was small and the majority of them were destined to fill posts in secondary-school teaching or perhaps at the university.

Of the changes which have taken place since then, perhaps the most spectacular is the extraordinary increase in the number of students, from 300 in 1940 to more than 7,000 in 1971. This increase has been accompanied by another, just as important, though proportionally smaller, in teachers, teaching aids and buildings.

This increase has not been merely quantitative but has also produced qualitative changes in the faculty. Intermediate structural units (departments) and intermediate categories of professorships (associate professors) have appeared. At the same time, the increase in the number of students has led to the appearance of new forms of instruction (evening courses) and the extension of the faculty in different cities of the province of Barcelona (Palma de Mallorca, Tarragona).

As far as courses of study are concerned, it is enough to say that in 1940 one could read for five distinct degrees at the faculty (philosophy, classical philology, semitic philology, romance philology and history), whilst today there are seventeen different degrees that one can study for. Moreover, in 1940 each course required the student to pass a rigid list of obligatory subjects, whilst at the present time he can, whatever his special field, choose from amongst a fairly wide range of options. Although the majority of students at the faculty continue to choose secondary-school teaching as a profession, a growing number are considering other

occupations of an intellectual nature, and degree courses leading to activities other than teaching have appeared as well.

It seems that one must look for the reasons behind these changes in the following social facts:

- (a) A greater demand for instruction at the university level;
- (b) A demand for more specialization in university education;
- (c) A greater preoccupation with the professional aspect of university training.

2. The processes of the change

Apart from stating motives, can we ask ourselves how these changes have occurred?

One must take into account the fact that in Spain, where public administration has traditionally followed French models, the university forms part of a fully centralized public organization, and that as a result the courses of study of the different faculties are drawn up by the public administration, on the initiative and at the request of the faculty concerned. University professors (in the higher category) are public servants. Public administration nominates them and assigns them to a post. The annual amount of the economic resources of each university, for investment as well as for maintenance expenses, is decided by the administration and plays a part in the budget of the state.

Under these circumstances one can say that the planning of changes which may occur at the university plays a role in the general planning of the state. In practice it does not happen this way. In the first place, and as is easy to imagine, planning at the state level is quite insufficient; the dimensions of the problems involved mean that to a large extent it trails behind events. Something else occurs also. As in all highly centralized organizations, where in theory all the decisions are made at the centre, in practice the processes of change originate elsewhere and spread and come to fruition in complex ways. A description of the principal changes which have occurred in different areas shows this clearly.

3. Changes in selection for university entrance and in types of instruction

Traditionally, the Arts Faculty admitted all students who finished their secondary schooling, taking into account the fact that the latter used to terminate with a final examination in which the teaching staff of the university had a hand.

In 1958 it was decreed that teachers, who had not completed their secondary-school education, could nevertheless gain entrance directly to the faculty. This was the result of a measure decided upon by the Ministry and applied to the whole of Spain. In addition, by a ministerial decision, in 1970 entrance examinations to the university were held for people over the age of 25 who had not completed secondary-school courses but who considered themselves capable of following university studies. The Education Act of 1969 abolished the final exam-

ination of the *Bachillerato*¹ and replaced it with a course of orientation. In the face of this fact, and the overwhelming increase in the number of students, the faculty decided to set up an entrance examination (not at the university but at the faculty). The examination was inaugurated at the beginning of the academic year 1971/72. However, the decision turned out to be so unpopular and the criteria so criticized—and so open to discussion—that it is probable that the experiment will not be repeated.

The problem of articulating the end of secondary education to the diverse professional systems of a higher level, and the recruiting and selection for those concerned specifically with the university is a burning question, in the face of which the faculty feels itself powerless.

4. Types of study: '*Enseñanza libre*' and evening courses

In Spain those who take regular courses on a regular time-table are designated 'official' students. Besides the latter there exist in certain faculties, and among them the Arts Faculty, '*alumnos libres*'² who, because they work full-time or because they live in a town away from the seat of the university or (and this is what occurs most frequently) for both reasons, do not attend classes at the university and merely present themselves for some examinations at the end of the course. The University Act of 1940 attempted to reduce this type of instruction and bring it closer to the norm. All students would matriculate in the same way but those who could not attend classes would request an exemption in each concrete case. As these requests were always granted, the system ended by being confused with its predecessor. Thanks to this tolerance, the number and proportion of *Estudiantes libres* grew each year until 1966. From that date, the number continued to increase, but not its proportion in the total student enrolment. One can say that the faculty feels scant sympathy for this type of study but has taken no steps to modify it. The Ministry of Education has a plan for setting up a 'university service from afar', to provide for these students.

In 1967 the first evening classes were introduced. In the first instance, these were set up for teachers who wanted to study at the faculty while they continued to exercise their profession in Barcelona. As a result of this initiative, congestion in the teaching centres (lecture rooms) of the faculty was eased by the rescheduling of certain classes at night. This form of instruction has grown extraordinarily. At the present time, the majority of the degrees that one can read for at the faculty can also be studied for at night. Out of the 7,500 students who at the moment attend the faculty, 1,300 attend at night.

This rapid growth is due to the pressure of the student body which is trying to make studying compatible with paid work and has urged, directly and indirectly, that new evening courses be set up and that the existing ones be enlarged. There has been an incidental factor which has played a role in this process. The fact that

1. Secondary School Graduation Diploma.

2. Literally 'free students'.

the teaching centres of the faculty were more than filled to capacity has made this rescheduling of courses easier. It must also be admitted that the faculty would like to establish special conditions for these students, but it does not dare to do so, and that the structure of the faculty is not suited to offering night school students the same facilities as it does to regular students. The truth is that the faculty set up evening classes but did not foresee their growth. It has found itself dragged along and even overwhelmed by this development. One may suppose that in the next few years this evolution towards schooling combined with employment will continue strongly and the faculty will consider itself obliged to make a considerable effort to adapt itself to circumstances.

5. Courses of study

The courses of study of 1940 and 1945 were typically 'national' courses, proclaimed by an act and compulsory for all the faculties in Spain. Once these were adopted, there began a process of modification which originated within the various faculties and whose common denominator was an increase in specialization in the various subjects. Little by little, new degree courses appeared and, in those already existing, optional courses were introduced from which the student could choose. In this process a major role was played by the teachers of the respective specializations who were interested in strengthening their special subject. In the history department, professors of ancient history, medieval history, and so on, work side by side and are the first to be interested in seeing their special subject converted into a degree. It is they who make such proposals to the Faculty, so that the latter can propose them to the Ministry.

In 1969 the most important step in this direction was taken, when an innovative Dean of the faculty drew up a new plan of study, in which the tendency towards specialization and the principle of choice would be carried out to their fullest extent. Although the Ministry received the plan with suspicion, because of its greater cost and its strong contrast with the plans of other faculties, faced with unanimous pressure on the part of the faculty, it decided to approve it.

In the process just described it remains clear that, in spite of official centralization, in reality the decisions are the fruit of a complex process in which the motivations and the force of different groups play a part.

It might be concluded that through this complex process the Faculty ends up by adapting itself in a satisfactory manner to new necessities. This is not entirely true. From 1945 to 1969 various modifications in the course of study occurred in the form indicated. But each one of them was born of a specific reason—the interest in one particular subject—and altogether they are a long way from constituting a coherent whole. The plan of 1969 was introduced as a synthesis and therefore one might think that it is more balanced. Nevertheless, as it was fashioned by the directors of the various departments, the proportion of the various degree courses reproduces almost exactly the structure of the departments existing at the mo-

ment. The result of this is the great disproportion which exists in the number of students in the different specializations.

Moreover, the predominance of specialized degree courses has come about at the cost of more general courses of study. But, for secondary school teaching, graduates with a more generalized, rather than specialized background (in history or languages or in other fields), are needed. Neither university professors nor their students have shown any interest in this point of view.

6. Structural changes

In 1940 the faculty was made up of a number of chairs. In 1966 following the tendency prevailing in many European universities, the chairs were grouped into departments. Broadly speaking one can say that, from then on, each department has taken charge of the organization of a degree course.

The number of departments and the content of their courses was the product of a planning which took into account the needs of teaching, but the result has been simply a regrouping of the chairs which existed before. Thus, wide disparities can be observed between the departments and their means of research, the instruction they offer, and the number of students they attract. The list of departments was drawn up by the Ministry. However, it is reasonable to imagine that, if the faculty had drawn it up, the result would not have been very different; each teacher tending to keep to his own section or coming into contact with those specialists most closely related to him. Proof of this is the fact that, in spite of the power of the faculty to close one department or to combine it with another so as to create a third, this option has never been put into effect.

7. The growth of the teaching staff

In 1941 the Arts Faculty consisted of fourteen teachers at the higher level (civil servants with permanent contracts) and seventeen teachers with temporary contracts. In 1970/71 it consisted of fifty-one in the first category, 101 in an intermediate category and 278 on the lower scale. This increase is certainly important, although in all respects it is inferior to that registered by the student body.

An increase in teaching posts in any of the categories is the result of a struggle between the requests of the faculty and the resistance of the Ministry to any increase in its economic obligations. The initiators of this struggle, more than the faculty as a whole, are the departments which make proposals to the faculty; thus, the longer established fields of learning or those which are better represented on the faculty carry more weight at the time when requests for staff increases are made. On the other hand, the Ministry does not meet all these demands. Its resistance is greater when dealing with permanent teaching posts and lesser when it is a question of temporary contracts; in addition, there exists a standard which

does not permit general courses to include more than a certain number of students. The result is the automatic multiplication of teachers to give more courses, and these, of course, are teachers with temporary contracts.

The outcome of this is something nobody wanted: a growing disproportion between the number of permanent teachers and the number of those on contract. This disproportion, and above all a tendency for it to be getting worse, is certainly harmful to the faculty.

8. The growth of research

In 1940 the amount of money assigned to research in the faculty was nil. In that year the Higher Council for Scientific Research was set up as the principal agency and executor of research in Spain. Quite a number of university teachers formed—and still form—part of the Council, so that one may consider that a joint programme of research between the Council and the university exists. The role of the Arts Faculty in this venture is small.

In 1968 another programme of aid to research was begun, consisting of scholarships to enable students to begin their research which were granted to young people who presented topics for study. The department to which the scholarship holder belongs receives a sum equal to that received by the student.

In 1969, a programme known as the promotion of research in the University was instigated, with the aid of grants. For this programme topics of study proposed by different university departments were subsidized. Finally the Institute of Education (ICE) can consider itself as part of the faculty and has its own programme of research.

In spite of the existence of these different programmes, the total amount set aside for research in the whole of the faculty is very small—between 4 and 6 million pesetas in the last academic year.¹

As far as the planning of research is concerned, one can speak of an authentic centralized planning at the ICE. A ministerial organization, CENIDE, takes charge of the research projects selected from amongst those proposed and controls and evaluates the results.

The large number of decisions—to accept or reject requests—which the central organization has to take provokes, as is natural, a large amount of criticism, more or less justified. The critics claim that the decisions concerning the distribution of funds for research should be made at the university or faculty level. At this level—university or faculty—decisions are made more quickly and are able to take into account a larger number of factors. But when decisions are made at this level, as has occurred at various times, other inconveniences arise. The committee members have their own interests and those of their colleagues in mind and it is very easy to yield to the temptation of an 'equitable' distribution which will please the greatest number of teachers possible. Here again, the list of current depart-

1. Exchange rate, July 1972, U.S.\$1 = 64.50 pesetas.

ments and their relative weight in the life of the university have a decided influence when it comes to distributing the budget set aside for research.

9. Final comments

In spite of the complete centralization of the administration of education in Spain, the processes of change have not been decided upon and put into effect at the central level alone, without the intervention in varying degrees of the different social groups interested in university education or affected by it.

One might think that, in spite of centralization, the force of reality has brought about the necessary changes in the faculty, whatever the administrative grade which eventually has to put them into effect. But this type of adjustment after the event cannot be considered as satisfactory. In this way changes in the organization of education, which should respond to the changes in the socio-economic situation, occur with great delay. The faculty finds itself dragged along by events instead of anticipating them. Moreover, the adaptation which thus occurs is far from being satisfactory, as is obvious in the different areas we have studied. For example, the large number of students who wish to alternate studying with paid employment has led to the setting up of evening courses, without the faculty having anticipated the means to make them effective.

From all this data the author draws the following conclusions: An exclusively centralized planning of education is ineffective. A faculty must have the power to plan at its own level and, in order to be able to do this, must have a relatively large autonomy at its disposal. An autonomy which allows one to plan is not sufficient in itself. In order for planning to be effective, the faculty—or the university—must possess an organization entrusted solely with planning.

This specific organization is necessary because today planning requires the use of precise techniques. But it is necessary above all in order to gather and analyse information on which planning may be based. In the Faculty of Arts, as in many others, this information is very limited and what little does exist is hardly used. Planning is not solely a technical problem, however. When one says that the faculty—or the university—must plan its own development, one must also ask who is the faculty? As in the majority of countries in Europe, the Arts Faculty of Barcelona is primarily a collection of departments. The opinion of the faculty on its future is, in the first place, the overall opinion of its departments. But, as can be seen, there are problems which the departments by their very nature are extremely reluctant to face up to and others to which they are indifferent.

In the faculty there are other groups who have different preoccupations. Thus, for the teachers on a temporary contract, who as has been pointed out are numerous, the problems of the structure of the profession are basic ones and it is in this direction that they would like to see the faculty make progress.

As far as the students are concerned, they have their own preoccupations and some of the changes which have occurred at the faculty have been initiated or encouraged by them. But there are other aspects of possible planning in the face

of which, as a group, they remain in principal obstinate; for example, selection for entrance or the limiting of the number of students to the number of jobs that one could foresee in each specialization.

One does not have to add to the list in order to notice the possible differences of opinion with regard to planning, and it can be seen that planning at the university is not merely a technical question. Ultimately it includes political decisions.

This aspect of the question appears in its most simple form when one considers the composition of the various planning agencies. What groups are represented and in what proportion? And when the more profound aspects of the question are considered the problem becomes that of reconciling the autonomy of the university and its obligation to serve the needs and objectives of society.

E. Organization of the teaching work at the University of Ife, Nigeria

by A. Babs Fafunwa,
Deputy Vice-Chancellor of the University of Ife,
and A. Adaralegbe
Dean of the Faculty of Education, University of Ife

1. *The University of Ife in Nigeria*

The first university to be established on Nigerian soil was Ibadan University College in 1948. Ibadan was an affiliate of London University and prepared its students for the London degree from 1948 to 1962, and it remained the only institution of higher learning in Nigeria throughout the fifties.

However, in the wake of internal self-government for certain regions of the Federation of Nigeria and with the imminent attainment of independent status by the nation, the country's needs for high-level manpower in administration, industry, business and other economic sectors greatly accelerated. It was politically and economically incompatible with the country's new status to continue to rely on expatriates filling such key posts in the essential services of the nation; and yet the University of Ibadan was quite inadequate to fulfil the country's needs in these respects, and so the solution lay in the establishment of a number of new universities. Thus, between 1960 and 1962 were born the Universities of Nigeria, Nsokka, Ife, Lagos and Ahmadu Bello, one in each region and one in the federal capital.

In announcing its intention to open the university, government policy was aimed at:

- (a) Meeting the challenge of university education in the development and rural transformation of the Western Region, in particular, and Nigeria, in general;
- (b) Establishing a university which would be of the highest standard;
- (c) Ensuring that the university would open its doors to students from all parts of the federation and of the world.

The new university had an ample opportunity to blaze new trails in university education in its philosophy and objectives; in its operational organization and its orientation. Inevitably, it was considerably influenced in academic, administrative and organizational structures by the University College of Ibadan, itself a product of British orientation. Ibadan later became an independent degree-granting institution after fourteen years apprenticeship as a college of the University of London.

On the other hand, Ife had an advantage in the quality and maturity of its

initial African staff who influenced decisions at that critical stage of its development. Moreover, in 1967 the university was transferred from Ibadan to Ife, which, with its 130,000 people, is famous as the centre of the ancient Yoruba civilization.

Starting in 1962 with 244 students in four faculties, the university now has ten faculties, thirty-eight teaching departments, seven research units with teaching and training responsibilities, one research unit without teaching or training responsibilities, and one service unit (the university farm). Moreover, there is a School of General Studies in the Faculty of Education. This school has no staff of its own at present but depends upon a pool of senior academic staff from other departments in the teaching of a general studies programme to all undergraduates of the university.

Furthermore, there has developed the nucleus of a Graduate School for post-graduate studies in all fields, which depends upon a cadre of senior academic staff from each participating department for teaching, research and supervision of dissertations and field work.

Each faculty of the university is headed by a dean. The post of a dean is rotational from among the ranks of senior professors in the faculty and the tenure is for a two-year period. The deans constitute an advisory committee to the Vice-chancellor in the day-to-day running of the academic programme of the university. The rotational and limited tenure of office of deans ensures that deans who are academic people in the first instance do not turn out to be career administrative persons or mere committee/conference people. It also ensures that individuals do not wield too much power to the detriment of the faculty or department or to his own or other's academic disadvantage. Each of the institutes is headed by a director. And in each department there is a head of department who is normally of the rank of a professor. The headship of a department is not by rotation but by appointment. There are normally departmental meetings at which academic programmes are first proposed, discussed, modified or deferred before being recommended to the appropriate Faculty Board, which in turn considers the recommendations through its Board of Studies, and upon agreement at the Faculty Board, recommends them for the approval of the Senate. The Senate discusses, weighs and reviews conflicting opinions and, in the overall interests of the University, arbitrates in matters of special significance to the university.

Many academic decisions or the supportive administrative decisions in academic matters originate initially at a number of committee levels before final approval by either the Council or the Senate of the university. The advantage of the committee system has been that it ensures greater participation by members of the university community in the affairs of the university. Membership of these committees is diffuse, although deans of faculties and departmental heads appear to be overburdened by attendance at too many meetings. Apart from this participatory nature of the committee system, a recognizable advantage of the system has been a further assurance that all academic decisions are adequately discussed before policy statements on them. But the committee system delays action and implementation of urgent matters. Discussion at each stage provides necessary checks

and balances, which though sometimes irritating, are nonetheless useful in avoiding hasty and costly decisions.

2. Higher education in Nigerian economic development

Planning Nigeria's economic development

The Nigerian population is about 65 million, with a density of 182 persons per square mile, which is well over double the world average, and around five times that of Africa as a whole. Moreover, increases in population are beginning to have implications for public budgeting and policy in the areas of providing more houses, increasing food production, expanding school facilities, improving and expanding medical and health services, and providing other social amenities such as communication and transportation.

Although four periods of economic development planning in Nigeria are easily discernible: (i) 1945-55, (ii) 1955-62, (iii) 1962-68 and (iv) 1970-74, there was no attempt in the first two plans to accelerate economic growth by laying down national goals and objectives. The five governments of the federation virtually worked in isolated and water-tight compartments. There was a lack of central direction which inevitably led to duplication, unhealthy competition and waste.

The 1962-68 Development Plan was the first serious attempt at comprehensive economic planning in Nigeria. Its fundamental objective was 'the achievement and maintenance of the highest possible rate of increase in the standard of living and the creation of the necessary conditions to this end, including public support and awareness of both the potentialities that exist and the sacrifices that will be required'. The Plan took cognisance of three major factors in the realization of the economic objectives of the country, namely:

- (i) a prudent financial policy;
- (ii) adequate inflow of external finance; and
- (iii) availability of skilled manpower.

Thus, for the first time, the concept of manpower development through education as a means to social and economic development became the watchword and an abiding faith in Nigeria. This concept was strengthened in the Report of the Ashby Commission of 1960, which recommended strengthening and facilitating the supply of high-level trained manpower for the country.

The interruption caused by the Nigerian Civil War resulted in the two-year gap between the third and fourth plans. The Second National Development Plan, 1970-74, contains the policy framework and programme for the reconstruction of the war-damaged areas, as well as the construction and development of the rest of the country.

Philosophy of higher education in Nigeria

The 1969 National Curriculum Conference meeting in Lagos emphasized that the

modern Nigerian university should involve itself in the vital task of modernizing the country, serve as an agent and instrument of change, and help in bringing in the fruits of modern science and technology and in promoting the rich cultural heritage of Nigeria. Hence, the Nigerian universities cannot be immune from the socializing and political influences of the times, nor can they be completely immersed in them without detriment to their essential role as an intellectual community. Through the universities, tribal loyalties are to be fused into national loyalties, and through research, the universities would fulfil their modernization roles by their impact on agriculture, industry, trade and business.

Structure of higher education in Nigeria

The constitutional, administrative and organizational structures of the six Nigerian universities are essentially the same, and they all follow the British pattern quite closely. They are organized around faculties and departments, except in Lagos where faculties are called 'schools'. Most of them concentrate on undergraduate degrees of a three-year and four-year duration, while graduate programmes are being developed. Ibadan has the strongest graduate school, but with enrolment still below 100. The University of Ife, with its one-year diploma course in public administration, ranks about second in graduate studies development.

In addition to the six Nigerian universities, other forms of post-secondary education include seven advanced Teacher-training Colleges (ATTCS), three polytechnics, a number of technical institutes or colleges, government departmental training schemes and intermediate professional schools, such as schools of nursing, agriculture, science, etc.

3. The changing pattern of the university curriculum

Academic development plans

The last five years have been of tremendous significance to the development of the character of the university. Although science, agriculture and technology had been given priority of development, the university has continued to strengthen the humanities, law, the social sciences and education as disciplines which it believes to be essential in the shaping of a modern technologically developed and stable Nigeria, and in the development of healthy individuals and societies. Equally, they are necessary not only for the understanding but also for the control of the technological potential of the country.

For the past five years, the university has become very sensitive to demands from society, in the training of graduates for the economic sector and in bringing the results of research closer to the needs of society.

With the establishment of the university on its permanent site since 1967, its development has not merely involved the transfer of faculties, departments or institutes to Ile-Ife, or the building of physical structures to accommodate labora-

tories, classrooms, staff and students, but has also meant the creation of new teaching and research units.

The Faculty of Education, established in 1967, is now making notable contributions to teacher education not only in the Western State of Nigeria, but in the entire federation. The institute has run regular summer vacation workshops and seminars in the areas of elementary science, modern mathematics, school planning and administration, while the staff of the faculty have spread out into other states helping with groundwork in curriculum change, innovation and evaluation in the nation's schools.

The university has become a recognized centre for teaching and research in population studies, and it is now establishing an Institute for Population and Manpower Studies.

In 1970 a centre for advanced study in contemporary pure and applied physical sciences was created, aimed at uplifting the standards of science teaching and research. It is also a backbone for science-based industries and it assists in developing analytical and physical tools for the various technologies being developed in the university.

Similarly, through its new Faculty of Technology the university is making a major contribution to the economic development of the country, while the Faculty of Technology has geared its curriculum to helping solve the problems of the mechanization of Nigerian farms, and of food preservation and processing. And there is the research project of the department of food science and technology and the department of biological sciences which is focussed on the production of better and cheaper bread flour from the cassava crop.

The new Faculty of Health Sciences is different in concept and style from any other of its kind in the federation. The overriding objective of Ife's medical education is to provide health and medical care to the largest number of people in both rural and urban centres. So, instead of simply adding to the pool of doctors, the faculty has designed programmes which will equip its graduates to work in the fields of micro-biology, radiography, anaesthetics, pathology, haematology, nursing and laboratory technology, and will ensure that resources in the field of medicine can actually reach the people for whom they are intended. Such paramedical graduates can then, if they like, go on to post-graduate training and become competent specialists in their fields. Some may decide to train as doctors. Also, by using small and medium-size government hospitals for its training of the para-medical and medical students referred to above, Ife is attempting to bring its resources closer to the people, and to help in the rural transformation of such hospitals and communities. Moreover, the student receives his training in situations that will help him learn from the beginning of his career to work in the sort of environment in which he will be most needed.

The content of the curriculum and innovation

Due partly to its initial British orientation, the university has had its doubts about the validity of its present courses and curricula, which culminated in 1968 in the

setting-up of a working party to review the existing curriculum, with the following terms of reference:

- (a) To examine the present structure of degrees in the university and make recommendations for its improvement bearing in mind the need to establish degree programmes that cut across departmental, faculty and subject barriers;
- (b) To examine the present structure of organization—faculty, department, institute, etc.—in the university and to make recommendations on a system of organization which will facilitate the operation of any new degree programmes which the Working Party may recommend as well as providing a framework for future development;
- (c) To make recommendations about the establishment of a Faculty of Graduate Studies.

The sixteen-member Working Party's Final Report was submitted to the Senate the following year and since then it has been debated hotly in academic circles, at departmental, faculty and Senate committee meetings. The entire university has been educated in the process, even though, until lately, no positive action has been taken to implement the recommendations of the Working Party. After reviewing and expressing full agreement with the objectives of the university as defined by the Vice-chancellor, the Working Party indicated that for such objectives: 'the existing degree structures, especially in the arts and the sciences must be drastically reviewed;' and also that: 'even in professional programmes, e.g. medicine, pharmacy, engineering, agriculture, etc., where the contents of the curriculum are determined largely by the requirements of the profession, there is the need for each programme to be designed to meet the demands of the society it is intended to serve'.

The Working Party stated that the university's objectives can hardly be met within the present degree structure which does not provide a sufficiently wide spectrum of courses to cater for different students' abilities and, particularly, for meeting the needs of those who, although they may not attain honours standard, could still get a good general degree useful not only to themselves but also to their communities and the nation.

The Working Party pointed out new trends in university structure and curriculum planning; *firstly*, the growing awareness of and move towards inter-disciplinary approaches that often lead to a broader education; and *secondly*, the awareness that as knowledge grows, develops and therefore changes, there must be a continuous re-evaluation of existing disciplinary areas. The Working Party noted that existing courses are too specialized, especially when seen in relation to the poor academic and general educational background of most of Nigeria's university entrants, due to poor preparation in the secondary schools. For this reason, it advocated a more liberalized course of studies, spanning three, four or five disciplines. At the same time, the Working Party minced no words in its advocacy of a truly liberal education and the significance of specialization, noting that 'gains from added breadth may be more than offset by losses in depth'.

Finally, the Working Party viewed with considerable concern the wastage in university drop-outs who, 'unable to pursue successfully a programme as re-

searchers, specialists, etc., find it difficult to continue within the present degree structure' and pleaded that 'their talents should not be lost to society'.

The balance sheet

Thus far, it has not been possible to implement the major recommendations of the Working Party on Curriculum Reform, although on a small scale a measure of flexibility and relevance is being achieved. A number of reasons appear to be responsible for the delay in implementing the far-reaching recommendations for reform. First is the question of academic standards. Opposition has centred largely on what in some quarters is regarded as the 'inevitable' lowering of standards should the reforms be carried out. Then there are members of the academic community of the university who cannot conceive of a degree granted in a Nigerian university without the stamp of a foreign university through the 'external examiners' system. Another problem is that the reforms would require additional academic and administrative staff and so would cost more money than had been budgeted for in the quinquennium plan of development. But clearly such plans should contain a system of alternative approaches, with built-in systems of self-analysis and evaluation that will permit modifications and adaptation of the original plan.

However, one of the Working Party's major recommendations is already in progress: a general studies programme has been introduced for all first-year students of the university. All new students will be offered two compulsory general studies courses in Use of English and African History and Culture, and one additional elective subject from among, (i) Introduction to Social Sciences; (ii) Introduction to the Humanities; (iii) History of Science.

The speed with which the controversial General Studies programme was implemented after the Vice-chancellor's note to the Senate touches on the problems of strategies for change and innovation in university curriculum reform. Undoubtedly, the element of sustained and informed leadership played a significant role. The Vice-chancellor took the chair himself at the committee stage, and besides, he appointed equally informed leaders as chairmen of the sub-committees of the Implementation Committee. Above all, the Committee set itself a target date when to report back to Senate. This could provide a model for getting action in other areas.

Apart from proposals about the curriculum, there is the problem that students sometimes express disenchantment with the 'closed-shop' systems wherein vital information concerning their academic future is kept away from them. The need has arisen for a two-way communication channel, between students and lecturers on the one hand and students and administration on the other, concerning student progress. The secrecy guarding sessional examination results is hardly justified by any educational or psychological standards. Students need to know their performance in the examinations they take in order to help them discover or rediscover themselves. It is not sufficient to say that they 'pass' or 'fail'. The point of secrecy, before ratification of the results by the Senate, is understood. But it

makes little sense if, beyond that point, students cannot be told about their performances. It is equally unjustifiable if they remain ignorant of the conditions under which their degrees are awarded.

In a different context, students have been accused of lack of seriousness, which critics have attributed to the rate of failure and the alleged falling of academic standards. But keeping their grades away from them does not encourage or motivate them to learn or do better. An effort towards a one-to-one relationship between students and the university officials connected with their academic success is required.

Quite apart from the revised course structure and the proposed reforms in course content, it is hoped that each department will be able to re-study its course offerings, asking how *relevant* and *meaningful* the sum total of exposure of Nigerian students to such a course is, particularly in helping these Nigerians not only to survive in their society, but also to contribute substantially to it.

The university may need to look into its appointment policy and require, at some future date, experience or training in university teaching from its academic staff. Alternatively, serving university teachers could be offered induction sessions that get them ready for their jobs of teaching and assessing students' progress. It is by such measures that reform proposals can take on more significance, that courses can be evaluated and renewed, modified or rejected, and that the university can really be involved in the dissemination of knowledge as well as in true scholarship.

4. The academic teaching staff

University staff recruitment, particularly into the topmost posts, is a perennial problem the world over. Highly qualified staff in all fields, especially in the sciences and applied sciences (technology), are in short supply. The situation is made worse for young universities in developing nations for a number of reasons: a lack of academic facilities; unattractive conditions of service; limited social and educational provision for families; etc. For reasons of this kind, the University of Ife, like other Nigerian universities, needed to build up as rapidly as possible a core of Nigerian academic staff in the various faculties and departments. Attempts at recruiting Nigerian and expatriate staff were made especially difficult at Ife because of the initial political problems the university got into soon after its foundation, and even more so because of the provincial character of its home campus at Ife which lacked certain basic amenities that could attract even young Nigerians.

The university started in the 1962/63 session with a total of fifty academic staff comprising twenty-five Nigerians and twenty-five expatriates, and this rose to 202 in 1966/67 and to 420 in the 1971/72 year, comprising 329 Nigerians and 86 non-Nigerians. Thus the Nigerians staff numbered 80 per cent of the total academic staff. There are now thirteen Nigerian full professors out of forty-one (or 30 per cent) in the university compared with two in 1962/63. An almost com-

plete Nigerianization of junior posts in the teaching service of the university has been accomplished, particularly in the assistant lectureship and tutorship grades.

On the other hand, there is great difficulty in filling established posts, particularly senior ones: one-third of the professorship posts, more than half of the readerships, and about another third of the senior lectureship posts are yet to be filled. Also there is a serious measure of imbalance and inadequacy in the overall staffing of certain departments and faculties. For instance, many departments are still looking for a professor as head. The department of education, with a student enrolment of 550 and with teaching responsibility for twenty-five full one-session courses has a staff of seventeen, out of whom six are on study leave, leaving eleven in post; while biological sciences with fewer students and about equal teaching responsibilities maintain twenty-nine members of staff out of whom only four are on study leave, i.e. twenty-five at present on the job. This trend in staffing appears to be consistent with the university strategy of developing science and technological education for the rapid modernization of the Nigerian communities.

Qualitative development

The university now has a growing crop of academic staff with higher degrees. Three years ago, a candidate with a good honours first degree would have been appointed without any difficulty as an assistant lecturer. Today, one requires a master's degree to be eligible for appointment to the same post. Similarly, new appointments into the lecturership cadre require a basic Ph.D. degree unless they are already experienced university teachers. In this regard, the university staff development scheme has paid off quite handsomely. A sizeable number of young Ph.Ds on the academic staff are beneficiaries of the scheme and are now returning in batches to take their place in university development. Another criterion for judging academic quality is experience of university teaching and the status or level of staff. Only about 21 per cent of the teaching staff are of the status of senior lecturer and above; there are many more junior people than senior teaching staff by status or grade. The university may require to make efforts either to recruit more senior staff of the right calibre or to promote internally more experienced people into the senior cadre of the lectureship ladder. However, the proportion of young people in the university is high. This younger generation of academic staff is more and better prepared academically and theoretically; they are more theoretically inclined than the older generation of Nigerian academic staff who are much more pragmatic or practical. But these younger members of the faculty do not have any worthwhile work-experience, nor have they been exposed to any previous teacher education processes nor on-the-job orientation of their profession as university teachers.

Such persons often perceive their jobs differently from the established norms of academic life. Students sometimes complain about the human relations of a good many of such young people who, they claim, try to maintain a social and academic distance from them. The 'publish or perish' syndrome in universities accentuates the problems of the young uninitiated lecturers, who tend to concentrate more

on churning out publications at the expense of their teaching and other legitimate assignments (including students' academic guidance). The present generation of young lecturers require pre-service training as teachers and educators before being offered university appointments; alternatively, at the very least, they require on-the-job induction or introductory programmes to initiate them into their difficult university jobs. The recent promotion policy of the university is good in the sense that it places responsibility on the shoulders of a number of Nigerians with the opportunity to grow *with* and *on* the job.

Recruitment strategies

Staffing of academic posts is still the most difficult problem facing Nigerian universities including Ife. The practice of appointing staff through the Inter-University Council (IUC) in London is still being used, although the Nigerian universities now have the final word on whom to appoint or reject. Over the last five years the catchment area for recruiting staff into the university has been widened to include all parts of the world. To this end, the Vice-chancellor makes periodic overseas recruitment tours to attract academic staff of the highest calibre and with the requisite experience for teaching positions in the university. A useful aspect of the annual overseas recruitment tour to Europe and the Americas has been a subtle attempt to attract well-qualified and experienced Nigerians back home to play a part in the task of national reconstruction and nation-building within the framework of the university. This has helped to reduce the Nigerian 'brain-drain' to other countries. Another feature of the past five years is the staff development scheme by which able graduates of the university and other Nigerian universities are recruited into the lower cadres of the academic staff, and then sent abroad for advanced degrees to qualify them in their specific fields of study. Between 1967 and 1971 more than 100 assistant lecturers and graduate assistants were recruited and sent abroad in this way. A variation of the scheme is the arrangement whereby much more senior staff go on study leave in order to enrich their experience in their own field. The staff development scheme is financed largely through foreign donations. Staff recruitment is also considerably relieved by special arrangements with British and Canadian universities through a staff exchange programme for short periods of time (say a term) in very crucial fields of learning where the staff is already in short supply. Although not strictly a staff recruitment matter, there is presently another aspect of staff development through normal and accelerated promotions from a lower rank to a senior one. As the Vice-chancellor emphasized at the 1971 Convocation ceremony, the stability of staff, and therefore of the university, depends very much on the rapidity with which Nigerian staff can be recruited and trained to occupy senior academic posts in the University.

Staff responsibilities and evaluating teaching effectiveness

The primary functions of the academic staff are to teach and to conduct research in their areas of specialization and, in the case of more senior people, to assume

some administrative responsibility where necessary. It is inevitable that the senior academic staff should be involved in planning strategies for the building of new classroom and laboratory blocks, the welfare services of the student body, the hiring and firing as well as the promotion and retention of their colleagues, the development of new curricula and the modification and renewal of old syllabuses.

It is not easy to determine the proportion of time academic staff spend on teaching, research and service to the university or to the community. The teaching load of academic staff varies considerably from one department to the other. In the sciences, the average teaching load is about three contact hours per week (the lowest) to a high six or nine hours per week of lectures and tutorials (seminars), apart from about six to nine hours of practicals. In the non-sciences, the average teaching load is between a low six hours with tutorials and seminars and a high twelve to fifteen hours including tutorials. A teaching load of three or four hours is obviously uneconomical and the university must aim at seven or nine hours on the average. One major reason for the low teaching load in some departments is the low student/staff ratio and this is being corrected gradually.

The trend towards the provision of elective courses in certain departments for the enrichment of students' backgrounds, the increasing number of students offering a given course, and the difficulty in recruiting suitably qualified staff in some areas have together resulted in a slightly higher teaching workload for serving lecturers. In addition, the awareness of the need to 'teach' rather than 'lecture' has required smaller tutorial groups for the discussion of individual problems and the opportunity for the students' self-expression.

Each member of academic staff is required to be engaged in some meaningful research project as an ongoing activity. In fact, the university encourages staff research in a limited but positive way by giving research grants to staff who apply, after due consideration of the person's proposals. The trend in the last two years has been to encourage co-operative and interdisciplinary research projects with common value to the departments, the university and the community.

There is scepticism regarding the quality of teaching and research by academic staff generally. There is a feeling that lecturers 'over-teach' the students, that is to say, that students are not given enough opportunity to think and reflect on the materials given them. Attention has been called to the inadequacy of either departmental or general 'main' library facilities to ensure that students can be assigned enough independent work to be later assessed. Criticism has been voiced about the methodology of teaching in the university, and the fact that it has not fully availed itself of the tremendous resources available in modern instructional technology. Indeed, the absence of an audio-visual unit in the university lends weight to the criticism that the best the lecturers can do is to 'talk' and 'chalk'.

One unanswered question relates to assessing teaching and research ability and at the same time weighing the two fairly and equitably for the purposes of promotion. There is the view that teaching effectiveness cannot be assessed. Those of this school of thought naturally put emphasis on research abilities that can be seen and quantified.

In the context of Ife with its limitations on books and research studies for

individual guided reading for students, a delicate balancing of the teaching and research capabilities of the lecturer is required. It should be possible to devise a way of assessing the teaching quality of the teaching staff. Efforts have started in the department of education at the university to devise a standardized rating scale for measuring job (teaching) effectiveness so that staff can be given a rating according to the quality of their teaching in quantitative terms. It is too early to report any progress on the rating instrument; nevertheless, the completed rating scale is expected to include items on the teacher's classroom behaviour, his interactions with students, his success at motivating students to learn, student's class responses, his effectiveness in the use of instructional aids to facilitate learning and such other items considered appropriate for undergraduate teaching.

Another question is being raised with regard to the kind and quality of research being conducted at the university. While basic and action research has its place within the university, people are requesting the type of research that will concentrate on the major human problems of our hybrid society. There is merit in relating research objectives, proposals and ultimate results to national problems, such as problems of water shortage, utilization of the national resources, and above all problems of living in a society. Universities in underdeveloped countries work in a peculiar environment which demands that their staff members should provide service to their communities. For African universities to truly relate to their environment, there needs to be a careful balancing of the tasks of teaching and research, as well as service to the community.

5. Organization of the universities' academic and instructional services

Organization of teaching

The teaching work at Ife is organized around subject departments in the main. Related subjects are grouped into home-based faculties. In the last four years the university has adopted a new philosophy which permits a course of studies to be taught, even up to the bachelor's degree level, without necessarily creating a separate department for the subject. This trend towards an inter-disciplinary approach to the university curriculum and teaching is an innovation among Nigerian universities.

The academic head of a department is normally responsible for organizing the teaching work of his department. Generally, he relies on the expertise and experience of his colleagues in the department in designing appropriate courses for the bachelor's degree. After a series of departmental discussions, the draft courses are forwarded to the appropriate Faculty Board of studies for further study and approval. The draft courses are then routed to the Committee of Deans, and then to the Senate. If the programme is referred back, it goes through the same process as before.

It is the business of the head of a department to assign lecturers to teach courses, normally, of course, in the areas of their own specialization. As a result of the

interdisciplinary approach to teaching certain courses, a lecturer in one department can teach a course in his special area in another department. Normally there is an exchange of views between two heads of departments in terms of teaching needs. The course is jointly planned and taught to all the students irrespective of specialization or the faculty to which the student belongs, i.e. a course in sociology adjudged suitable for the background of a lawyer will be offered by the department of sociology. In some cases departments do attempt to design special courses for non-specialists who need such courses to broaden their education.

Teaching methods

Teaching strategies at Ife are organized around two major areas. In the non-sciences most courses are offered in two lecture hours plus one tutorial hour per week for the duration of an academic session consisting of approximately thirty weeks of three terms. In the sciences, courses are organized around two lecture hours a week and about four to six laboratory hours every week for the session. Thus, basically, the most important teaching method is the lecture. The form as well as the quality of the lecturers vary from one course or lecturer to the other. There is only a small number of lecturers who 'teach' and do not lecture as such. Most lecturers hardly ever use audio-visual aids to facilitate learning.

While there are tutorials (in the non-sciences) and the laboratory hours (in the sciences) as teaching techniques in current use at the university, innovations such as team-teaching, project assignment for teaching purposes, structured and unstructured teaching, programmed instruction, closed-circuit television or video-tape instruction, teaching by correspondence, etc., have yet to be explored for their applicability in Ife. It has been suggested that the Department of Education should lead the way in those respects. In addition, the department has been called upon to mount on-the-job courses in pedagogy for university lecturers in such areas as human growth and development, motivation and learning, learning ability, assessing student progress, and teaching techniques.

Students at the university

The overall percentage of applicants who were finally admitted into courses in the 1970/71 academic year was seven. In the Faculty of Health Sciences the percentage was as low as two, whereas in sciences generally it was eighteen. The minimum entrance requirements of the university are:

- (a) (i) A General Certificate of Education, or its equivalent, which shows not fewer than two subjects passed at Advanced Level and at least three other subjects passed at Ordinary Level;
- (ii) Degrees of other universities as may from time to time be recognized by the Senate.
- (iii) Any certificate obtained in an examination other than those specifically named in the regulations, or any other qualification which the Senate may hold to be equivalent.

(b) In addition, all candidates are required to have attained a certain minimum standard in English.

The duration of a course of study for a first degree is normally not less than three academic years. Students admitted through the concessional entry normally carry a full load extending over not less than four years.

The Senate may permit an undergraduate of an approved university who transfers to the University of Ife, or a graduate of an approved university, to proceed to a first degree at the university with exemption from the whole or part of the entry requirements and, in approved cases, he may be allowed to complete the degree in not less than two academic years. Similarly, a graduate of the University of Ife may, on the recommendation of the appropriate Faculty Board, proceed to *another* first degree of the university.

The university has been trying to meet some of the pressing demands on it with regard to student hostels. It has encouraged students to live off-campus in Ife city as day students, quite apart from those students bussed in from the two out-campuses within Ife city walls. The ultimate university policy is to encourage more and more day students to benefit from university education at Ife, by avoiding the expenditure of scarce money on prestigious student hostels and student boarding subsidies. The distinct advantages of this scheme lie not only in the possibility of bringing university education to more qualified Nigerians who would otherwise have been unable to afford the tuition fees and the boarding fees for living in student hostels, but also that university education would be planned so as to bring university and town together, rather than the university community living untouched and uninfluenced by the local communities, and vice versa.

Space utilization for instruction

In the first few years, there was little problem about space allocation, but with the rapid expansion of students and courses, the problem has become more acute in the last two years. Today, there are shortages in lecture rooms, office space and laboratory facilities. Inadequate laboratory space has been reported to cause an over-stretched workload for staff and students, who have to work in shifts.

From the layman's point of view, the classroom blocks in the humanities and sciences are not only imposing but also very solid and beautiful edifices. But it appears as if some of these buildings were not properly designed with their ultimate use in mind.

It is therefore reassuring that the proposed Faculty of Education building, among others, is now being planned and constructed in a methodical way.

The Civil War had had its effect on the university; particularly, it meant inadequate financial support for capital development in building projects. Such a situation forced the university to devise several ways of utilizing available space more efficiently. For instance, lecture, seminar and tutorial hours are now scheduled for every hour, on the hour, throughout most of the working day until late in the evening. Laboratories are used for longer periods on a shift system and by many more students. Offices are sometimes used for small group or tutorial discussions.

Office space for increased senior academic staff became more acute two years ago. The university has embarked on a policy of building more functional utility buildings that are simple and less expensive, yet aesthetically pleasing. Utility hostels for an increased student population, as well as utility offices for an increased academic and non-academic supportive staff, have been completed.

Allocation of instructional and office space is handled centrally by a committee set up by the Vice-chancellor. Towards the end of each academic year, heads of departments state their needs in order of priority and the committee allocates resources on an agreed set of criteria, which may vary from one year to another depending on expected student enrolment. With regard to instructional space, priority is given first to large classes and then to smaller classes.

Linked with the problem of space utilization is that of time-tabling, which has assumed almost insoluble proportions in the last two years with the expansion in academic courses and the variety of students' groups to be provided for. With the aid of the Computer Centre, the Time-table Committee is expected to schedule classes for periods and places with minimum clashes in time-tabling. It is hoped that with more student enrolment and with diversified disciplinary interests, a computerized time-table will become more and more the solution. The computer solution is still being developed and cannot be reported in any detail at the time of writing.

Library and other instructional facilities

A very modern central library was opened for use in the 1969/70 session, built to hold 250,000 volumes of books and other instructional materials. At present there are 100,000 volumes, including books, journals and current publications of international academic repute. Departmental heads and other academic staff of the university are encouraged to suggest book orders, and the library staff always tried to place immediate orders following suggestions received for the general and reference sections of the library. A monthly accession list of books is published for the information of all academic staff.

But the university library requires to be strengthened more and more with adequate provisions for audio-visual and other instructional materials. Books alone do not make the modern library a true centre of learning. Apart from the main library, there are a number of small departmental libraries including the Institute of Education Resource Centre, mainly for providing schools and colleges in the West with latest educational materials in all fields in order to encourage more use of libraries and to improve the quality of public-school education in the Western State. A mobile van carries book boxes to schools and colleges on a loan basis.

Students require to be motivated to make an increasing use of the library. More independent study programmes should be planned into existing curriculum offerings and time-tabling. Students who use the library facilities hardly ever read books outside their narrow fields of specialization, unless they are especially prescribed and the prescription is accompanied by the threat of an examination.

A quick survey of students' reading habits gives the general impression that very few students read from the general leisure reading section of the library. They run the danger of being 'uneducated literates'.

6. Looking to the future

This study coincided with the celebration of the Tenth Anniversary of the founding of the University of Ife (1962-72). Thus it offers the opportunity not only to look back, but also to look into the future.

Objectives and planning

There is still a wide gap between the statement of educational objectives and the implementation of those objectives in the operation of a university in the service of the nation. Our earlier analysis has indicated a number of constraints and outworn traditions; the university has tried, perhaps more than many other African universities, to relate itself more meaningfully to national development and social aspirations. In the decade of the 70s, it may have to experiment more deliberately so as to test some of its hunches and assumptions. In particular, it has to examine such crucial questions as:

- (a) What kind of students would benefit most from university education at Ife?
- (b) Should the university embark on making its education relatively cheaper and easier through evening classes and correspondence courses?
- (c) What further emphasis would be placed on on-the-job training for those already in gainful employment?

It is being discovered that planning without adequate facts is not very profitable. The absence of a research and planning wing in the Registry of the university has limited the efforts of the Development Committee and its sub-structures. Members had to depend mainly on experience, memory and intuition. There is a need for a permanent division of research and planning to provide the university with the required information for decision-making. Apart from basic data collection put into computer language for easy retrieval, the division should devise and communicate to the staff of the university a model providing for operational (annual), intermediate (short-range) and long-range planning. Such a model might have five operational functions, identified with each of the main planning steps:

- (a) The *planning* function (or stage), when the institution establishes its planning strategies, setting tentative objectives, enumerating expected outcomes and needs, specifying operational difficulties and developing criteria.
- (b) The *programming* stage, when the institution develops its programme analysis, translating its objectives into school programmes, designing curriculum objectives and requirements.
- (c) The *budgeting* process, when the institution develops its allocative strategies, develops techniques for input/output analysis, assigns budgetary costs, prepares detailed cost schedules including sources of revenue, and formulates fiscal policies for revenue allocation and expenditure control.

- (d) The *executing* function, when the institution develops executive strategies for establishing organizational structure, control and feedback for draft legislation or regulation, and for operating the plan from day to day.
- (e) The *evaluating* strategy tries to establish control and feedback, review or re-review objectives and programmes in the light of operational experiences.

The academic programme

There are some who contend that the existing programmes do not provide students with enough choice, and who question how appropriate and relevant are some of the degree programmes in helping Nigerians to survive in our modern times.

The university needs a conceptual model in planning university courses of instruction which will force planners to rationalize on questions of relevance, suitability, balance and flexibility of programmes of instruction.

In this cyclic planning process, instructional objectives would be derived from social and national aspirations. Evaluation of outcomes becomes meaningful when it considers achievements alongside stated and desired objectives, and when, going a little further, there is opportunity to modify, adjust, adapt, or even abolish certain programmes by substituting others in their place as a result of past experience based on performance.

The teaching staff

The staff development policy of the university has succeeded in realizing the cosmopolitan nature of the university community, and also in maintaining a variety of backgrounds among the faculty. Nigerianization of the academic staff can be a worthwhile objective for several reasons, so long as the international nature of universities is recognized and care is also taken to ensure that the individual is not only qualified but also *ready* to assume the responsibilities of his office. But if the university is to succeed in doing the one-thousand-and-one things it is committed to doing, there will be the need to increase the staff quota substantially in the coming years, especially at the lectureship levels for undergraduate teaching, and at the senior lectureship (and higher) level for the post-graduate courses. The development of the graduate assistantship cadre in the academic hierarchy of the university is welcome, because they are people who could be useful in organizing small seminar or tutorial groups where students' individual creativity can be encouraged and fostered. In this connexion a number of the innovative strategies in teaching could be more usefully explored, for example, team teaching in large classes of about 100 and upwards before breaking into smaller groups of between five and ten. Closed-circuit television or video-tape presentations become possible under this arrangement.

At present, staff promotion is based largely on research, publications and to a lesser extent on teaching ability. Recently, an *ad hoc* committee of the Senate was set up to examine the present procedures for promotion. An over-riding objective is consistency of approach, department by department and across faculties,

in the criteria for promotion, as a recognition of individual abilities in teaching research and service to the university and the community.

Budgetary matters

The curricula can be expanded, liberalized and made more flexible provided there are enough qualified academic staff to make it work. The developmental planning of the teaching work of the university is a function of many variable factors: human, financial, material and physical resources. Most of the factors could be provided if only the financial support were available, whereas it is usually not adequate to procure essential university services. It normally happens that the state and federal governments cut down on the university estimates.

To solve these and other fiscal problems, the university may need to devise ways of saving money through tighter budgetary control. It may also like to consider very actively the encouragement of wealthy Nigerians to endow research studies, or to teach or train personnel in various fields of study of benefit to the country.

Conclusion

If the modern Nigerian university is to get involved in the vital business of modernizing and transforming the country, the first essential is that there should be more co-operation with the government. Secondly, the university must serve as an agent and instrument of change by bringing the fruits of modern technology and the knowledge of their rich cultural heritage to as many Nigerians as possible. Nigerian universities may have to re-examine their programmes of study with regard to the end-products. For instance, in determining research priorities, notwithstanding the academic freedom of the universities, the criterion should be that of social relevance to Nigeria's needs *now* and in the future. Furthermore, the universities must get more and more involved in community problems through, for instance, internship programmes for their graduates, the involvement of graduates in compulsory national service, and the organization of literacy programmes, adult education, continuing education and in-service training schemes for the masses of the people either formally (in campuses) or informally, through correspondence courses and in off-campus situations.

F. The teaching process in the Faculty of Arts and Sciences of the American University of Beirut, Lebanon

by Matta Akrawi

of the Education Department, American University of Beirut

1. The American University of Beirut

The American University of Beirut (AUB) is in many ways a special type of university, different from national, private or public universities serving the country in which they operate. It is a foreign university, situated in Beirut, which serves primarily the Arab world, including Lebanon and the Middle East region. Its language of instruction is English, which is neither the dominant language of the region, Arabic, nor one of the other languages of the Middle East. It is chartered in the State of New York, while at the same time it is subject to the provisions of the Lebanese law on higher education. Its student body, though predominantly drawn from nineteen Arab and three Middle Eastern countries, includes a substantial proportion (over 14 per cent) of students from thirty-six other countries of the world.

The Syrian Protestant College operated for fifty-two years under Ottoman rule and after 1918 continued under the French Mandate régime until 1943, since when it has been operating under the independent Lebanese Republic. Its charter was amended in 1920 when it was renamed the American University of Beirut. It now comprises four faculties: Arts and Sciences; Medical Sciences (comprising Medicine, Pharmacy, Nursing and Public Health); Engineering and Architecture, with programmes in Civil, Mechanical and Electrical Engineering and in Architecture; and Agricultural Sciences. Its total enrolment was 4,012, in 1971/72.

The role of the AUB

The establishment of the national universities in the Arab world beginning in the 1920s and their growth until they came to enrol about 350,000 students, and the rise of similar national universities in the other Middle Eastern countries, raised the question of the place and future role of a foreign university like the AUB in the scheme of Middle Eastern higher education, with an enrolment which is hardly 1.2 per cent of the total student enrolment of the Arab world in higher education. Moreover, the whole atmosphere of the Middle East has changed. It is no wonder then that the AUB has, since the early fifties, been reviewing its position and enquiring into what its future role might be.

The report of the University Survey Committee exercised a great influence on subsequent thinking at the AUB. In 1968, what was known as *Programme Analysis IIA* was published. This programme, which was prepared around the time when the university was celebrating its hundredth anniversary, set down three goals for the university during the ten-year period starting from 1969/70:

'To develop undergraduate training as a prototype for the area, taking advantage of the university's position as a private institution where there is freedom to be experimental and where, in a broader sense, a laboratory for education in the Middle East can be maintained.

'To develop as the main thrust into the future a centre for graduate studies and research, where the university's faculty and facilities can serve the graduate students of the region and return them to teach in their own countries, thus effectively multiplying the AUB's limited resources.

'To develop an extension programme for the immediate and regional communities served by the university, so that its professional and technical resources may become more available to the entire area.'

2. The AUB and its social and educational environment

The AUB draws more than four-fifths of its students from the Arab world, which in 1969 had an estimated population of 122 millions; the five major non-Arab countries sending students to AUB (Pakistan, Iran, Turkey, Afghanistan and Cyprus) had a population of over 200 millions. These students coming to the AUB from the Middle East and Asia have as their native tongues Arabic, Turkish, Persian, Armenian, Kurdish, Pushtu, Urdu, Bengali, Punjabi, Nepalese, Greek and, occasionally, one of the dialects of Southern Sudan. All of them receive education at the university through the medium of English, in which they must attain a good level of proficiency before they are admitted as regular students.

The population of the Arab world is predominantly rural. Two phenomena are observable. The first is a migration from the rural areas to the cities; this has led to the rapid growth of urban life, especially in such capital cities as Beirut, Damascus, Baghdad and Cairo.

The second phenomenon is the attempt by a number of Arab countries to settle their nomadic tribes, while the rise of the oil industry has attracted a large number of tribesmen to serve as workers in the oil industry. The educational opportunities for the youth of the rural and tribal population in universities and higher institutions is very limited.

Another fact about the Arab population is its relative youthfulness. On the average, 45 per cent of the total population of the Arab world is under 15 years of age and 63 per cent is under 25 years of age.

One can thus appreciate the great difficulties that stand in the way of social development, and particularly educational development, due to the fact that nearly half the population is non-productive.

The *per capita* national product at market price of the main countries served by

the AUB for the year 1969 ranged from \$110 in the Sudan to \$3,320 in Kuwait. Countries having a high production of oil relative to their small population have a *per capita* national product ranging from \$1,510 to \$3,320. Other oil-producing countries with a relatively large population have a more modest *per capita* product ranging from \$260 to \$351, while in the non-oil-producing countries the *per capita* product ranges from \$110 to \$751. The low *per capita* national product in some of the countries is an important factor in retarding their social and economic development.

The economies of the region remain preponderantly agricultural. Although industrialization has been gathering momentum since World War II, it is for the most part based on agricultural raw materials. Recently, new industries have been arising which are based on the mineral resources or on chemical processes, e.g. oil refineries, pharmaceuticals and the like.

A series of foreign occupations beginning in 1830 and ending in 1918 gradually brought most of the Arab countries under the dominations of four Western powers, i.e. Britain, France, Italy and Spain. It took the whole period between 1918 and the middle sixties for the Arab countries to regain their independence—the first, Egypt, in 1923 and the last, Oman, in 1968. This naturally generated an intense national feeling which became one of the most powerful political drives in the Arab countries, aiming not only at liberation, but at the unification of the Arab world, the revival and regeneration of its culture and the rebuilding of its economic and social life. In 1944 the League of Arab States was founded, of which all the Arab states are now members.

The process of liberation was accompanied by a serious setback, the loss of Palestine, which resulted in more than one million Arab refugees. Perhaps more than anything else this brought out the weaknesses of Arab society. Monarchical régimes began to fall, and parliaments have disappeared from all except Lebanon, Jordan and Kuwait, to be replaced either by variously named national assemblies elected on the basis of a single-party system or by revolutionary councils. The political upheaval is triggering a social, economic and cultural upheaval, and is, in turn, triggered by it.

Administratively, all the Arab states have a centralized form of government. The state may be headed by a king, a president or an Emir. A cabinet constitutes the highest executive authority. On the whole, the provincial and the municipal councils have limited authority.

Modern Arab society is changing at an increasingly rapid pace which pervades all material and non-material aspects of life.

Much of this change is unplanned. Modern education is one of its principal instruments. It is important to remember, however, that the rate of change is very uneven through the Arab world in almost every aspect of life.

The educational situation

There is now a nearly uniform framework for Arab primary and secondary education, most of the Arab states having a uniform ladder of six elementary grades,

three intermediate grades, and three senior secondary school grades. The only exceptions are Lebanon and Morocco which follow a 5-4-3 plan and Kuwait which follows a 4-4-4 plan. Primary-school enrolment has quadrupled, and in some cases quintupled, since 1950. The expansion of secondary and higher education has proportionately been even greater. The total enrolment in higher education today is nearly ten times what it was in 1925. There has thus been a tremendous pressure on universities and higher institutions which shows no signs of relenting. Student enrolment in 1967/68 was 345,000, of whom 66,000 were women. The Arab states are spending between 3.2 and 6.6 per cent of their gross national product, or between 10.1 and 20.3 per cent of their national budgets, on education.

Lebanese background

While the AUB serves the Middle East and Arab world, about 50 per cent of its students are Lebanese. This is one measure, among others, of its services to Lebanon.

The Lebanese population of 2.6 million is almost entirely Arabic-speaking. A republic with a liberal democratic constitution and an elected parliament, Lebanon has an economy which is essentially of a trading and service character. Tourism constitutes one of the main resources of the country; industrialization is gaining ground.

Education in Lebanon is probably more widespread among the population than in any other Arab state. An estimated 80 per cent of the children of primary-school age are in school. A large number of private and public intermediate and secondary schools dot the Lebanese countryside, both in its smaller towns as well as in many of its villages. The Lebanese population is reputed to be the most literate among the Arab states. Knowledge of foreign languages, notably French and English, is very widespread.

Higher education in Lebanon

Today the AUB serves the Lebanon, the Arab world and the rest of the Middle East. Out of the total of thirty-four universities and more than 100 other colleges and institutions of post-secondary education in the Arab world, five universities and twelve colleges are in Lebanon, with a total of 42,652 students in 1970/71. The enrolment in the Beirut Arab University is five times, and that in the Lebanese University three times, as large as in the AUB. The Lebanese University is the only state institution of higher education in Lebanon.

The control which the Lebanese Government exercises is limited and indirect. The Lebanese state has confined itself in its higher education policy to setting a minimum condition for admission (the baccalaureate, second part, or its equivalent), to setting up a committee for the equivalency of degrees, to exercising a control over the employment of foreign professors and to establishing an advisory Higher Education Council made up of the presidents of the various universities,

whose main function is co-ordination among the institutions. So far, there are few signs of detailed and scientific planning of higher education in Lebanon.

3. Administrative structure of the AUB

As a foreign institution chartered in the State of New York and operating in Lebanon, the AUB has to conform to the higher education standards of the State of New York and, at the same time, take heed of the requirements of the higher education laws and policies of Lebanon.

As regards the relation with the University of the State of New York, the latter is called upon by law to supervise the universities and higher institutions which are chartered in New York State, so as to renew their registration and thus their accreditation, i.e. recognition of their degrees.

The administrative mechanism

The highest authority over the AUB is vested in a Board of Trustees, which is a self-perpetuating body, electing new members as it sees fit—usually prominent businessmen and figures in society together with some high-standing academic persons from outside the AUB.

The president is the chief administrator of the university responsible to the Board of Trustees. All major programmes and recommendations originating in the departments, schools and faculties, as well as the major decisions of the various bodies and the recommendations of the administrative officers of the university are, in principle, subject to his approval, or at least he is consulted about them. He presides over the University Senate, the University Council and the Board of Deans.

The highest academic body is the University Senate, which is the legislative body for the academic affairs of the university. It is composed of nine *ex officio* members and nineteen regular members elected by their faculties for a term of three years from the full-time faculty appointees of the rank of associate professor or above who have served the equivalent of at least three years full time.

The University Council is an advisory body made up of four members under the chairmanship of the President.

The function of the Council is to advise the President on the questions about which he seeks their opinion, such as the deanship of a faculty.

The Board of Deans, made up of the four academic deans and directors of schools, and the provost, is the link between the President and the faculties, and is the latter's immediate academic consultative body. It is both advisory and decision-making, and deals with all questions of academic policies.

The Budget Review Committee is made up of the four academic deans, the Provost, the Vice-president for Administration (chairman), the Comptroller and the Budget Officer, and meets under the chairmanship of the Vice-president for Administration. The President, advised by the Budget Review Committee,

sets out the budget guidelines and then annual budgets are prepared in the first instance in the departments, and are sifted and unified by the deans in consultation with the Faculty Advisory Committee. They are then submitted to the Budget Review Committee, where they are scrutinized, and where each faculty has to defend its proposals and marshal all the facts at its disposal, such as teaching loads, sizes of classes, programmes and development needs. It is here that decisions have to be made about setting up new costly programmes or discontinuing old programmes which may have served their purpose.

Once finalized, the budget is submitted to the President who forwards it to the Board of Trustees with his recommendations. After full study, the budget is adopted and budgetary allocations are then distributed to all organizational units of the university.

The deans are the overall administrators of the faculties. They make recommendations about the appointment, promotion and termination of academic personnel; they prepare the budget in consultation with the heads of departments and programmes; they appoint the chairmen of departments after consultation with the department and the Faculty Advisory Committee.

The Faculty of Arts and Sciences itself is composed of all teaching and research personnel in the faculty of the rank of instructor and above. It has authority and general supervision over all departments and programmes and other activities which it authorizes. It formulates its own academic policy, and directs its own affairs. Any of its actions, however, which affect university policy or may involve financial commitments have to be referred to the University Senate or the President respectively.

The faculty has nine standing committees, which are: the Advisory, the Curriculum, the Administrative, the Library, the Disciplinary, the Research, the Scholarships, the Graduate and the Admission Committees. Committee members are elected by the faculty for a term of two years.

The departments of the Faculty of Arts and Sciences decide on the programme of courses to be offered, subject to the approval of the Curriculum Committee. The chairman of the department is responsible for the preparation of the departmental teaching schedule, for the appointment of academic advisers to students majoring in the department, and for preparing the departmental budget. He initiates plans for the development of the department, co-ordinates and approves expenditure from the departmental budget, and prepares an annual report to the dean which will make part of the dean's annual report to the President and the Board of Trustees.

The administrative structure of the Faculty of Agricultural Sciences (FAS) is quite similar to that of the Faculty of Arts and Sciences. The differences are mainly due to the small size of the faculty with an enrolment in 1970/71 of 292 students compared with 2,634 for the Faculty of Arts and Sciences. Another difference is the nature of the work which is almost entirely professional and in which the applied and practical aspects of teaching play a big role.

The faculty has three main components: the School of Agriculture, the non-degree programmes and the Agricultural Research and Educational Centre

situated at the university farm in the Bekaa Valley, about eighty kilometres from Beirut beyond the Lebanese mountain range.

The university has always had a wide programme of extra-curricular activities of which the students' professional societies and social clubs form an important part. And it has also been attempting to implement the idea of student participation in university government. Some of the faculty committees already have student members. The Student Council is the chief representative student body. Its constitution has gone through a number of transformations. The latest constitution, inspired by the Senate Special Commission's report, makes the Student Council the co-ordinator of all student activities.

The structure of the AUB, which looks administratively centralized with a complex hierarchy culminating in the President of the university, is in fact a flexible structure, which leaves a great deal of leeway to the academic departments to initiate their own policies, programmes and curricula, and to recruit their own academic personnel. The unifying factors in all this complex and flexible structure are a series of regulations and bye-laws drafted by the university bodies themselves at the various levels, and the method of continuous consultation, which permeates the whole academic structure.

4. Planning at the AUB

The introduction of planning at the AUB began in 1962 soon after the presentation of the report of the University Survey Committee. A preliminary ten-year plan was drawn up, the academic parts of which originated in the departments and were co-ordinated by the deans of the faculties. This plan was submitted to the Board of Trustees which issued directives for its revision. Accordingly, faculty committees were established which undertook a great deal of detailed planning on objectives, targets, range of studies, enrolment projections, etc. The plan, however, was never completed nor ratified, probably because of financial difficulties and a change of administration. But it represented an important stage in the AUB's evolution of thinking with regard to planning activity.

Planning remained in abeyance for about a year and a half when the Board of Trustees called for a ten-year projection of the total university programme as it was in 1965. In preparing the new projections, the university authorities asked themselves two questions: (a) Can an integrated programme be developed at the AUB within the outline of the university as a whole? (b) Can such a programme be financed? They answered both of these in the affirmative. A first programme analysis was submitted to the Board which had to be changed owing to events in the Middle East (June War of 1967) and elsewhere and a second revised version known as *Programme Analysis IIA* was produced.

This analysis claimed to be based first on the university's basic programme, and covered all the seven faculties and schools of the university, the university hospital and the administration. It defined the specific targets in terms of operations to be undertaken over the nine years following 1967/68. It worked out the implications

of the operations in academic staff, managerial posts, non-academic staff and students in one schedule for each faculty and school, and for the hospital and the administration. At the end, it worked out a schedule of capital works for forty-nine projects, phased over five years and beyond. For instance, part of the plan set out the proposed increases in academic and administrative personnel and in students over the five, seven or ten years of the plan, showing the total increments over the period for each of the seven faculties or schools, as well as for the hospital and the administration.

Programme Analysis IIA was followed seven months later by *Programme Analysis IIB* which calculated the cost of *Programme Analysis IIA* over a period of the first six years from 1968/69 to 1973/74 inclusive. It is in fact a budgetary forecast for the whole university and gives both income and expenditure. Its thirty-three tables give the projections in personnel and expenses for each faculty and school as well as for the hospital, the administration, the libraries, the physical plant, etc. It estimates an increase of 42.4 per cent in the budget of the university over the six-year period.

How realistic were the projections of *Programme Analysis IIA*? From the standpoint of the budget, it seems to have come quite close to reality as witnessed by the fact that the estimated budget for 1971/72 is roughly of the same order as that envisaged in *Programme Analysis*. But the targets for both graduate and undergraduate students at the end of the period of seven to ten years, proved to be underestimated since they were almost reached or even exceeded in the fourth year of the programme.

On the programme side, the graduate programme, at any rate on the Ph.D. level, is too expensive and, in certain cases, difficult to staff with a competent faculty. It begins to look rather doubtful that the AUB will be able to implement more than a few of the sixteen new Ph.D. programmes projected in *Programme Analysis IIA*. Criteria have to be evolved to enable the university to decide between such fields as public health, economics, business administration, political science and public administration, education and similar areas for which a developing Middle East has a great need.

Three years after the ratification of *Programme Analysis IIA*, a review and revision of the programme was undertaken in the spring of 1971. This resulted in the wider introduction of projects on an interdepartmental and interfaculty basis, in taking stock of the results achieved up to that year and introducing changes either in the conception of some of the projects or by deferring them to a later year.

One cannot help wondering, however, whether one of the reasons might have been hasty planning which resulted in including attractive-looking programmes without sufficient analysis of their implications and feasibility.

In one sense, planning at the AUB is the function of the whole university. It includes: (a) the faculties, their departments, their committees and their individual professors. These are the starting point at which most of the ideas and the aspirations for future development have their origin. They do enjoy in this a great deal of freedom; (b) the Senate, the vice-presidents, the provost, the Board of Deans,

the Budget Review Committee, the President and the Board of Trustees. These are the higher policy-making bodies and individuals who issue the guidelines, and who exercise a certain amount of control on the programme; (c) the Development Office; (d) the Office of the Budget.

The Development Office is one of the focal points to which plans from various parts of the university come. But the Development Office is in essence a fund-raising office and does not participate in any detailed planning of university programmes and activities.

The Budget Office attempts to analyse the costs for every type of programme, the trend of such costs from year to year and the variables and ratios upon which the costs depend. Among the variables it analyses are:

- (a) Enrolment by faculty and programme, both by head count and full-time equivalent;
- (b) Number of academic staff by rank;
- (c) Average work load per week of the academic staff by rank;
- (d) Ratios of student/faculty and student/graduate assistant, academic/non-academic personnel;
- (e) Class size by level of instruction;
- (f) Cost per student by faculty and level of instruction;
- (g) Cost per credit hour by level of study and faculty.

The Office also studies the percentage distribution of expenditure for each type of programme in the various faculties and schools.

But one thing is missing—a central agency at the university responsible for planning, which would co-ordinate the efforts of the departments, the faculties and the administration; and might indeed undertake to increase the planning capabilities of all those involved in the planning process. A recent recommendation to change the Budget Review Committee into a Planning and Budget Committee seems to be a move in that direction.

Another need is further development of the information system within the university. More refined and detailed statistical information over a number of years is needed from the Registrar's, the personnel, the budget and Comptroller's offices. More refined standard units from the latter two and from the construction and space utilization offices are also needed, along with full information about basic policies and goals and targets sought by the university. This kind of information is basic to any planning and should become readily available to all faculties, departments and offices of the university.

5. The teaching process in the Faculty of Arts and Sciences—the basic programmes.

The Faculty of Arts and Sciences (A and S) is the largest faculty in the university. Its enrolment amounts to five-eighths of the total university enrolment; and its teaching staff is also the largest. It is in fact the central faculty of the university from which the students branch out to join the other faculties after one or more years of study.

The faculty has four main functions: (a) it provides a programme of general liberal education to all its students; (b) in its undergraduate curriculum it provides an initial specialization, usually in one or two fields, in what is known as the major; (c) it provides higher specialization in one field in its programmes for the master's and doctor's degrees; (d) it is also a service faculty, preparing students for entry into the professional faculties and schools, and co-operating with these faculties by providing instruction in some of the basic sciences required by them.

The faculty has seventeen departments, five programmes and four institutes or centres. They are the following:

Departments

- | | |
|---|--|
| (i) Arabic and Near Eastern languages | (x) History and Archaeology |
| (ii) Biology | (xi) Mathematics |
| (iii) Business Administration | (xii) Philosophy |
| (iv) Economics | (xiii) Physics |
| (v) Education | (xiv) Political Studies and Public Administration (PSPA) |
| (vi) English | (xv) Psychology |
| (vii) European Languages and Literature | (xvi) Religious Studies |
| (viii) Fine and Performing Arts | (xvii) Sociology and Anthropology |
| (ix) Geology | |

Programmes

- (i) Cultural Studies Programme (CS)
- (ii) Graduate Programme in Development Administration (GPDA)
- (iii) Middle East Area Programme (MEAP)
- (iv) Oriental Studies Programme (OSP)
- (v) University Orientation Programme (UOP)

Centres or Institutes

- (i) Centre for Behavioural Research
- (ii) Economic Research Institute
- (iii) Centre for English Language Research and Teaching (CELRT)
- (iv) Science and Mathematics Education Centre (SMEC)

In addition, the Faculty has a Physical Education non-credit programme for first-year students and for organizing and running the university's major games, swimming, track and field events. As can be seen, the Arts and Sciences Faculty covers a large number of fields, some of them pure disciplines and others applied or professional studies.

The Faculty offers the following types of work to its students:

- (a) *The University Orientation Programme.* This is a programme for students destined for various parts of the university who have failed to secure the necessary score on the English Entrance Examination. They receive an intensive course in English for one or two semesters, depending on their ability in English.

(b) *Undergraduate Programmes.* These are programmes of four years for those who enter the first-year class (freshmen) and must take a minimum of 120 credit hours, and of three years for those entering the second-year class (sophomore) who take a minimum of ninety credit hours before graduation. There are the following programmes:

- (i) Bachelor of Arts, for those majoring in the Humanities, the Social Sciences and Fine and Performing Arts;
- (ii) Bachelor of Business Administration;
- (iii) Bachelor of Science, for those majoring in mathematics or one of the sciences, and for those planning to enter the School of Medicine.

(c) *Graduate Programmes.* Departmental programmes are offered for a Master of Arts, a Master of Science and a Master of Business Administration. Ph.D. programmes are offered in Arabic literature, Arab history, physics and chemistry. In addition, there are several interdisciplinary and interdepartmental Master's programmes, e.g. a programme in Middle Eastern studies (the Departments of Arabic and Near Eastern Languages, Economics, Education, History and Archaeology, Philosophy, Psychology, Political Science and Public Administration, Religious Studies, and Sociology and Anthropology), Master's programme in marine biology (Departments of Biology and Geology), and a programme in nutrition (Faculties of Arts and Sciences, Agriculture and Medical Sciences).

A special unit made up of professors from the Departments of Political Science and Public Administration, Business Administration and Economics offers a graduate programme in development administration.

(d) *The Teaching Diploma.* Besides its undergraduate and graduate programmes leading to the B.A. and M.A. degrees, the Department of Education offers programmes for the teaching diploma (T.D.) at the undergraduate and graduate levels. This involves practice teaching in addition to special courses in education.

(e) *The Summer Session.* In 1970, nearly all the departments were offering summer courses; 105 courses were offered to 1,022 regular students, exclusive of the University Orientation Programme and the summer institutes, workshops and colloquia. Four of the departments offered graduate courses.

The A and S summer session now serves five purposes: to help students to make up deficiencies; to enable bright students to have an accelerated programme of study; to help working students to spread out an academic year's work over eleven instead of nine months; to enable undergraduate students unable to attend for four full academic years to take at least part of their studies in the summer; and finally to enable teachers unable to attend during the year to undertake graduate work in education.

(f) *Extension and Special Programmes*¹. This type of programme is meant to broaden the service of the university to the Middle East area and to respond to its needs in ways that are not strictly bound by the requirements of degree

1. These programmes are under the direction of the Assistant Provost for Extension and Special Programmes. They have been included here because they are very largely germane to the programmes of the Faculty of Arts and Sciences and are taught mostly by professors from this faculty.

programmes. They are intended to serve a wider public than those qualified to pursue post-secondary regular studies, and no special conditions are required for admission, although a few of the courses may be meant for bearers of secondary-school certificates or even of university degrees.

Recently, the Division of Extension and Special Programmes has started to offer evening courses, some of them of a practical nature, another category are general cultural courses and a third category are educational courses on teaching (e.g. modern mathematics for parents, leadership training in women's physical education and recreation).

- (g) *Evolution of enrolment in the A and S Faculty.* The total enrolment in the A and S Faculty has increased in two decades by 169 per cent to 2,632. Undergraduate enrolment increased 116 per cent, while graduate enrolment has increased by 900 per cent to over 500 students. This shows clearly the influence of the new policy of expanding the graduate programmes. The total summer enrolment for the degree courses and the University Orientation Programme rose to 1,093, or by 64.8 per cent in seven years.

Admission to the Arts and Sciences Faculty

Since the university receives its students from a large number of countries with different systems and standards of secondary education, its requirements for admission are rather complicated. After the passing of the Lebanese law on higher education which required the Lebanese Baccalaureate, Part II, or its equivalent for admission, the AUB now admits, in principle, to the first-year class only holders of government secondary-education certificates or such non-governmental certificates as are nationally recognized, like the English General Certificate of Education (GCE). For those countries, such as the United States, which have no official government certificates, the student should have completed a full course of secondary education and received the diploma of his own school. Such a student will have to pass the full entrance examination of the university, unless he has already attained satisfactory scores in the test of the American College Testing Program (ACTP) or the tests of the College Entrance Examination Board (CEEB).

All students have to pass the English language entrance examination of the AUB, or its equivalent, except those students who have studied in a recognized English language school, college or university.

Admission to the second year is restricted to students who are holders of the Lebanese Baccalaureate, Part II, or its equivalent, or to those who have satisfactorily completed the studies of the first-year class at the AUB or at a recognized institution, and to those students who, being holders of other official government certificates, can pass the university entrance examination to the second-year class.

Quantitatively, the new policy has meant a shift of emphasis from admission to the first-year class to admission to the second-year class. One reason for this is that Lebanese students, who constitute nearly half of the enrolment, now have to enrol in the second-year class. The first-year class now only receives non-Lebanese students.

Admission to graduate work

A candidate for the master's degree must have a university degree and, normally, an average of 80 per cent in his major subject. Applicants are accepted first by the department in which they want to work and then by the Faculty Graduate Committee.

Students wanting to specialize in a subject other than their undergraduate major will have a more extended period of study. Candidates must pass the English entrance examination, unless especially exempted. Candidates for the degree of Ph.D. must hold a Master's Degree or its equivalent, and must be accepted by the department, the Faculty Graduate Committee and the University's Board of Graduate Studies.

Organization of the teaching and learning situation

Instruction in the whole university is organized according to the American practice of semester courses, each of which is allotted a certain number of credit hours. A credit hour is usually equal to one classroom period a week for the duration of the semester. In certain courses which require practical work, such as laboratory and shopwork, extra credit is given.

Students entering the first-year class all take prescribed credit hours in Arabic (or an elective course, if non-Arabic speaking) and English; arts students also take credit courses in history, one elective subject, and choose one science course (general biology, chemistry or physics); science students also take credit courses in mathematics, and either general chemistry or physics; and both take a non-credit course in physical education. Thus the freshman's work is almost completely mapped out for him by the faculty.

Students successfully completing the freshman class who have not gone into any of the professional schools, or students entering the sophomore class directly, have three decisions to make, usually during the sophomore year. Science students have to decide whether they want to prepare for entry to the School of Medicine or to continue towards the B.Sc. degree. Science and arts students will have to start thinking about the branch of study which they will adopt as their major. The sophomore year is thus partly in the nature of an orientation year, continuing the orientation that had taken place in the previous year. Having decided on their majors, students have then to decide whether they want to work for the Teaching Diploma. In all these decisions, the academic adviser is ready to assist the students.

The courses are of three types:

- (a) Courses required from all students;
- (b) Courses required by the major department;
- (c) Elective courses, a proportion of which must be outside the major department.

There are three types of majors:

- (a) A major in one field given in one department, usually for students who want ultimately to specialize;
- (b) An interdepartmental major in each of two departments in related fields;

- (c) A teaching major in a subject taught in elementary or secondary schools; here, the student is offered a well-rounded view of his field, plus the educational studies for the Teaching Diploma.

How do the departments and the students apply this pattern in practice?

Nearly all the departments require the student to secure their approval before majoring in the department.

On the whole, once the student decides on a major field, nearly 70 per cent of his course work is mapped out for him and, in the remainder, he can select his courses fairly freely in consultation with his adviser.

The graduate programmes

To be eligible for the Master's Degree, a candidate must spend at least two semesters in residence, or one semester and two summers or three summers in residence, on a full-time basis. The requirements for the degree must be completed within no more than four years after admission to graduate work. A candidate ordinarily has to take a minimum of twenty-four credit hours, of which twelve must specifically be graduate courses, and he must write a thesis. Each student is appointed an adviser who, at the same time, is chairman of his supervisory committee. In order to graduate, a student must attain a grade of seventy in every course taken and must have a cumulative average of seventy-five overall and a cumulative average of eighty in the graduate courses. He must also pass a general examination in his major field of study. He must present a thesis of an acceptable standard and must defend that thesis in an oral examination conducted by his supervisory committee.

Usually, a graduate of the AUB takes about three semesters or a year and two summer sessions to graduate. Others usually take two years and sometimes more. Departments may add their own requirements to the general requirements. The determination of the specific courses to be taken is left to the student and his adviser, although a few departments specify from one to four courses as required courses. Some of these courses have to do with methods of research, others are considered basic to the field of graduate study chosen by the student.

There are also interdisciplinary and interfaculty M.A. and M.Sc. programmes, such as the Graduate Programme in Development Administration, the Middle East Area Programme, the Marine Biology Programme and the Nutrition Programme.

To be admitted to Ph.D. work, a student must have a Master's Degree or its equivalent and must be accepted by the department, the Faculty Graduate Committee and the Board of Graduate Studies. Other admission requirements are the same as those for the Master's Degree.

The Ph.D. programme requires a residence of two years doing full-time graduate work. A supervisory committee, of which the student's adviser is the chairman, plans a complete programme of study for the student, reviews it before the student has completed fifteen credits in residence, and approves his dissertation topic. The programmes of study, once finalized, must be approved by the Board

of Graduate Studies. A modern European language in addition to English is required.

A student must complete a minimum of twenty-one credits of course work, of which not less than eighteen credits are in graduate courses. The department may require additional credit hours. He must pass a comprehensive written examination in his field before an examining committee of at least five members appointed by the Board of Graduate Studies, and this may be supplemented by an oral examination.

Though admitted to work towards the Ph.D., the student is not admitted to candidacy for the Ph.D. degree until he has completed all course work, passed the language and comprehensive examinations, and has been recommended by the department. Though the candidate may begin work on his dissertation, he cannot present it for approval before he passes that examination.

The dissertation should be based on the original research of the student. When completed under the guidance of the supervisor, it is submitted for the final oral examination which is designed to ascertain whether or not the candidate possesses the qualities of intellect which indicate that he is prepared for a scholarly career.

6. Planning the teaching process in the Faculty of Arts and Sciences

The initiative in curriculum development in the Faculty of Arts and Sciences may come from the departments and their professors, or from one of the higher authorities, whether it is the dean, the president or even the Board of Trustees, or proposals may come from the students.

Curriculum changes remain within the department unless they involve changes in the number of credit hours or in the titles and descriptions of the courses or in the establishment of new courses; they have to be forwarded after approval by the departmental faculty to the dean who in turn passes them over to the Arts and Sciences Curriculum Committee.

This committee includes members from the humanities, the social sciences, the natural sciences and mathematics, which ensures that there are enough competencies in the committee to raise significant questions about the curriculum proposals. The committee may approve the proposals or suggest modifications or, more drastically, return the proposals to the department for further consideration. More often than not, the department comes to terms with the committee and secures its approval. It may, however, disagree with the committee and stand on its proposals; in most cases, the committee gives in to the departmental point of view. In case of a radical disagreement, which is rare, the committee or the department then submits the matter to the Arts and Sciences Faculty.

The Curriculum Committee has developed a set of criteria and guidelines for evaluating the curriculum proposals of the departments at the undergraduate level:

- (a) The number of courses in any curriculum should be the minimum consistent with an undergraduate programme of good quality;

- (b) The curriculum should avoid duplication and proliferation of courses;
- (c) Emphasis should be on methods and approaches rather than on detailed factual material;
- (d) The curriculum should be viewed as a unit and should present a comprehensive and sequential programme of study;
- (e) The curriculum should be up-to-date, including as far as possible the latest developments and trends in the field;
- (f) An increase of credits for a course should be contingent on the department giving a clear justification and need for the increase.

As the number of graduate curricula increased, the committee added the following criteria for their evaluation:

- (a) The graduate programme should contain some 'core' courses which are basic to further graduate study;
- (b) Courses listed should be within the competence of the existing staff in terms both of content and numbers;
- (c) Beyond a basic core, the programme should provide maximum flexibility in order to accommodate individual students' interests;
- (d) Seminars, tutorials and selected topic courses are preferred to long lists of occasionally offered special courses.

The decisions of the Curriculum Committee are usually final, except in the following cases, when they have to be referred to the Arts and Sciences Faculty:

- (a) When it is a question of increasing or decreasing credit requirements, if these go beyond the approved guidelines;
- (b) When a change is proposed in the requirements for degrees or diplomas;
- (c) When a new type of study is introduced, such as tutorials, directed study, student-initiated studies and the like;
- (d) When new areas of specialization are proposed, such as the new programme in mass communication.

Curriculum questions are not usually referred to the university Senate or to higher authority unless they involve the establishment of new degrees or diplomas, or imply a change in university academic policy, or unless they imply budgetary increases or staff increases which go beyond what is allotted to the faculty.

Such are the curriculum development practices in cases when the initiative comes from the departments. There are, however, cases in which the initiative comes from the President, or from the Board of Trustees. The recent emphasis on interdisciplinary programmes and curricula came primarily from the President. A major initiative came as a directive from the Board of Trustees following the report of the Harrington Commission which had remarked that the Faculty of Arts and Sciences had too many courses and too many small classes compared to a faculty of its size in the United States. The Board, therefore, issued a directive for the review of the curriculum which was transmitted to the Curriculum Committee. The committee issued a circular to the departments in 1966 asking them to re-examine their curricula in order to eliminate duplication and abolish courses that had been very poorly attended or had not been given for a number of years. It adopted the principle that normally it would not accept the addition of new courses

unless they are counterbalanced by the removal of an equal number of old courses.

There resulted a complete re-examination of the Arts and Sciences curriculum during the ensuing five years from 1966/67 to 1970/71. All departments and programmes submitted proposals for the revision of their curricula. Most of the departments took the occasion to bring their curricula more up to date, to make them more relevant to the needs of the area and to introduce, with faculty approval, new types of majors. Some of the departments were broadened. The Department of Arabic developed a programme in Near Eastern languages, the Department of Fine Arts added a programme in the theatre, that of Mathematics a programme in computer science, that of Modern Languages a programme in comparative literature, etc.

A number of departments submitted more than one revision of their curricula. The graduate programme for development administration submitted two proposals, the Department of Mathematics four, for example.

Thus, it can be truly said that curriculum revision is a continuous process in the Arts and Sciences Faculty.

The major trends have been the development of interdepartmental majors, interfaculty programmes and teaching majors. There are also recent trends in the thinking of the Curriculum Committee, such as the recommendation on independent directed study which has been approved by the faculty and has begun to be applied in a limited way; or the discussion now taking place in the committee about student initiated courses.

The key person in the application of the curriculum and in the development of its content is the individual professor and a great deal depends on the degree to which he takes a hand in the initiation of new courses and in regularly revising and developing the content of the courses he teaches.

Among the reasons cited for the introduction of new courses or for making substantial revisions of the courses are: (a) relevance to the needs of the Middle East area; (b) bringing the course or the curriculum up to date in the light of modern trends and developments; (c) relevance to the needs, interests and demands of the students; (d) necessity for adequate preparation for future studies, e.g. the pre-medical course, or preparation for graduate work; (e) filling gaps in the curriculum.

To a number of the professors, the textbook virtually supplied the outline and major content of the course, especially in undergraduate teaching. The great majority of the textbooks used by the professors responding to the questionnaire were published one to five years back, a fact which tends to show the efforts of the professors to make their courses as up-to-date as possible. Nevertheless, three-fourths of the professors responding distribute supplementary materials to their students, mostly in mimeographed form. These may contain texts or summaries of articles not easily available, ancient history documents, outline maps, tables, laboratory sheets, diagrams, supplementary materials on topics not covered by the class and other types of material.

How far does the planning of the courses take account of the Middle East?

A review of the 792 courses included in the university catalogue for the year 1970/71 under the Faculty of Arts and Sciences, showed that 172 courses were centred on the Middle East, while another twenty-six courses mentioned the Middle East in their descriptions, thus constituting 22.8 per cent of the total courses. Given the fact that three-fourths of the teaching staff is Arab or Middle Eastern, it is probably safe to state that about 25 per cent of the course content taught in the faculty deals with the Middle East. In a sense, this is a measure of the adaptation of the teaching at the faculty to the Middle Eastern situation. This is an important point for a university operating on foreign soil, where the temptation to imitate the practice in the home country tends to be great.

It must be stated that, as in most universities, there are the pioneering professors, the fairly progressive ones and those who tend to lag behind. The system of promotions does try to stimulate the professors to good work and to eliminate the laggards when necessary.

Essentially, the Arts and Sciences Faculty and the departments do not interfere with the professors' choice of teaching methods. While they would encourage experimentation and innovation in this field, they consider the matter of methods of teaching entirely the professor's responsibility and prerogative. Similarly, evaluation is left entirely in the hands of the teachers and there are only a few regulations to ensure uniformity in the grading system and in the satisfaction of promotion and graduation requirements.

How do the professors evaluate their students' work and arrive at a final grade at the end of a semester? In undergraduate study, this is a question of a combination of means of evaluation consisting mainly of classroom tests and quizzes varying in their frequency, of a mid-term examination, of reading assignments on which oral or written reports are presented and on final examinations. These last are mandatory for undergraduate courses. Arriving at the final grade is a matter of taking into account the students' work during the semester and averaging it with the grade of the final examination. The weighting of the various elements depends almost entirely on the discretion of the teachers and the nature of the course. The final examination may vary from 20 per cent to two-thirds of the final grade, but is more likely to be between 33 and 40 per cent.

The advisory system, counselling and teacher-student contacts

The university has a number of mechanisms for offering advice and assistance to the students who need it. A student life office with a Dean of Students and a Dean of Women, both with a background of social work, handle mainly non-academic matters related to student life at the university.

There is also the university counsellor who is a professor of psychology and whose functions are to offer psychological services to the students. He is in close contact with the university health service to make sure that the student is in sound health and is not suffering from an organic ailment. On the average, he deals with about seventy-five students a year who take about fifteen hours of his time a week.

The academic advisory service in the Arts and Sciences Faculty is divided be-

tween the freshman and sophomore adviser, the various departments and, informally, the professors when approached by students for advice. Advice during the freshman year is tentative because many apparently weak students improve considerably as they become familiar with the system of teaching and as they acquire greater proficiency in English. Once the student has taken a decision about his major field in a department, it is the department that becomes responsible for advising him. The advice consists of planning the student's programme in such a way as to acquaint him with all the requirements and to fit his programme to his main interest. The final result of this is the distribution of students over a large number of major fields, or combinations of two fields. Each student has more or less his own programme of studies. Graduate students specialize nearly always in one field.

It would have been interesting to compare the fields of specialization of the students with the occupations of university graduates after they leave the university. Unfortunately, the university, except for the Faculty of Agriculture to a certain extent, does not keep a systematic record of the fields of occupation of its alumni.

Planning the work of the teaching staff

According to university regulations, a full-time teaching appointment implies teaching twelve to fifteen credit hours per week, or the equivalent, plus other duties associated with academic responsibilities. The application of this regulation differs from faculty to faculty. In the Faculty of Arts and Sciences the usual load for the full-time teaching staff, regardless of rank, is nine credit hours per week, or an average of three semester courses. The remaining time is supposed to be utilized in committee work, thesis supervision, administration, research, student advisory work and the like. In practice, the nine-hour teaching load may be further reduced for special reasons, such as the chairmanship of a department, conducting a special research assignment, and the like.

How do the professors use their non-teaching time? A study of the responses to the questionnaire shows that on the average a professor spent 10.8 hours a week on research, 9.6 hours on administration, 5.7 hours on thesis supervision, 3.5 hours on student advising and 2.5 hours on committee work. These averages must be taken with some caution, since the understanding of what constitutes 'research' or 'advising' does not seem to be uniform among the professors. About 60 per cent of the teaching staff do some form of committee work in the University, faculty or departmental committees, or in special *ad hoc* committees. The number of committees served by a professor ranged from one to five. About 65 per cent of the teaching staff did thesis supervision work, with a range of one to seven theses for which a professor was chief supervisor (i.e. chairman of a thesis committee). In addition many of the professors were members in one to five thesis committees.

The Dean's Office of the Arts and Sciences Faculty keeps watch over staff distribution, the use of staff time in teaching and the academic staff teaching load. It also has an eye on costs and on the sizes of classes. For this purpose it uses a

TABLE 1. Departmental analysis of the Arts and Sciences Faculty, spring semester 1969/70

Department	Total teaching staff ¹	Graduate assistants ²	Semester hrs. per teacher ³	Student contact hours per teacher		Small under-graduate classes ⁵	Departmental expense per student sem. hr. ⁶ \$	Degrees granted	
				excl. G.As	incl. G.As			B.A./B.Sc.	M.A./M.Sc.
Arabic and Near Eastern Languages	12.0	2.0	9.9	141	121	19	43	6	5
Biology	9.4	6.5	8.2	251	148	2	41	38	2
Business Administration	9.4	2.0	9.4	290	239	—	21	73	10
Chemistry	11.9	9.5	9.3	300	167	5	39	40	2
Cultural Studies	11.0	—	11.4 ⁷	274	274	2	22	—	—
Economics	6.3	1.0	8.8	307	265	1	20	33	3
Education	10.7	0.5	8.3	138	132	6	47	10	25
English	17.6	2.0	9.6	153	138	20	35	20	19
European Languages and Literature	6.7	0.5	9.4	101	94	9	33	1	—
Fine and Performing Arts	7.0	1.0	7.5	133	116	8	60	4	—
Geology	3.8	1.5	8.3	207	148	1	52	13 ¹²	3
GPDA ⁸	5.6	2.5	2.7	67	46	—	52	—	15
History and Archaeology	9.3	1.5	8.9	218	188	8	36	23	10
Mathematics	16.8	3.5	8.6	216	179	5	29	19	7
Philosophy	5.8	0.5	7.0	98	90	1	68	6	2
Physics	10.5	4.8	7.3	191	131	6	65	7	3
PSPA	10.3	2.5	8.4	184	148	2	45	81	15
Psychology	4.1	2.0	9.4	189	127	5	58	5	9
Religious Studies	2.1	—	9.1	227	227	1	39	—	—
Sociology	5.3	1.5	9.3	271	211	1	24	16	2
UOP	8.3	1.0	11.2 ⁹	145 ⁹	129 ⁹	—	31 ¹⁰	—	—
<i>Average (mean)¹¹</i>									
Spring 1969/70	8.9	2.2	9.0	201	162	5.1	37		
Spring 1968/69	8.7	1.9	9.4	207	170	4.1	37		
1969/70	8.8	2.2	9.3	210	169	5.0	37	21.9 ¹³	7.8 ¹³
1968/69	9.0	1.8	9.2	203	169	4.1	37	21.0 ¹⁴	6.3 ¹⁴

NOTES TO TABLE 1

1. Full-time equivalents. Includes instructors, lecturers, assistant, associate and full professors. Graduate assistants and persons on leave or furlough excluded. Adjustments made for teachers in one department who offer a course in another department, for departmental chairman's duties, and for approved administrative teaching load reductions.
2. Full-time equivalents. Each graduate assistant is half-time. Research assistants employed on special grants excluded.
3. Total credit hours given by professors divided by full-time equivalent teachers. Corrected for personnel transferred to other budget lines (research grants, Dean's Office). Low enrolment courses figured on following basis: one or two students, 1/3 credit; three or four students, 2/3 credit; more than four, number of teachers in full-time equivalents.
4. Summation of credit hours given by the department times number of students in each class, divided by number of teachers in full-time equivalents.
5. Undergraduate courses with enrolment of less than fifteen students.
6. One-half the total year's projected budget for the department, divided by summation of credit hours times number of students in each class. Administrative, library, building, and other necessary 'overhead' expenses are not included in this figure.
7. Computed assuming a Cultural Studies (CS) discussion section is a two-credit load. All teachers in CS are given two credits (if full-time) or one credit (if half-time) for the general CS lectures.
8. GPDA is not strictly comparable to other departments, since it is a purely graduate programme. It has been excluded from the overall averages.
9. Computed assuming the UOP semester work is equivalent to fifteen credits.
10. Budget items used in UOP but included in the CELRT budget have not been included.
11. Based on twenty undergraduate teaching departments.
12. This figure includes two Geography majors.
13. Computed on the basis of eighteen departments offering Bachelor's degrees and seventeen offering Master's degrees.
14. Computed on the basis of seventeen departments offering Bachelor's degrees and sixteen offering Master's degrees.

number of ways, chief among which is a table based mainly on departmental reports to the Dean's Office during the first weeks of each semester on the courses being offered by each member of the academic staff and the number of students in each course. We reproduce here a sample of this table (see Table 1) because it illustrates a method of knowing at a glance the quantitative facts about each department or programme and is of some importance to the planning of the teaching load and cost on a departmental and faculty-wide basis.

The table gives nine indices for each department or programme: the number of full-time equivalent teachers and graduate assistants; the semester hours per teacher; the teaching load in terms of student contact hours per teacher; the number of small undergraduate classes; the cost per student-semester hour; and the number of undergraduate and graduate degrees awarded in the year 1969/70.

The table and the semestrial departmental statistics enable the Arts and Sciences Faculty administrators to size up the situation in the faculty as regards such questions as the following: whether a department is over- or under-staffed and the possibility of reducing the staff in one department while increasing it in another; the average teaching load in the departments and whether some professors carry a lighter load than others; the teaching load in terms of student-hours per professor and the departments that are overcrowded or are experiencing a penury of students; the number of undersized classes and the possibility of reducing them; the cost per student-hour; and the input-output situation, that is, the input in staff, students and expenditure in relation to the output in graduates, etc. For example, the Department of Philosophy had the highest cost per student-semester (\$68.00), yet its staff of about six professors enjoyed the lowest teaching load among the departments and the lowest student-semester hours per teacher, and produced only six Bachelors of Arts and two Masters of Arts in 1969/70. By contrast the Department of Economics which has only half a professor more than the Department of Philosophy has an average teaching load of 8.8 hours per teacher—1.8 hours more than the philosophy teachers—three times the ratio of student-hours per teacher, the smallest number of small classes and the lowest cost per student-hour, yet produced five times the number of Bachelors of Arts and one more Master of Arts than the Department of Philosophy. Similar comparison might be made between other departments, such as Physics and Biology, History-Archaeology and Business Administration, etc. These are likely to show certain defects which need to be remedied, certain under-used facilities that could be better utilized, high costs that could be reduced; and other features of interest to the university administrator. Of course these indicators are not the only factors that are to be considered in policy-making and planning. There are questions of the philosophy of education of the university, questions of values, as well as country, regional and internal university needs that must be considered. Our information is that the above quantitative indicators have been used sparingly and with caution. They are, however, a useful instrument.

The planning of research

Research planning is essentially a matter for the individual research worker. There is an A and S Research Committee whose function is primarily the co-ordination of research activity and the provision of financial support. Its budget, however, is very limited, \$25,000 in 1970/71. Consequently, its grants are rather modest, mainly to cover expenses for books and sources, equipment, remuneration to research assistants and secretarial help. There are, however, outside non-budgetary funds. In 1970/71 these amounted to \$247,000, mainly solicited from private or public contributors and foundations by professors of departments and research centres directly or through the University Grants Co-ordinator. Some professors state that their research enriches their teaching. Some induct their students into research by asking them to investigate parts of their own research. Some professors take advantage of their sabbatical year to do research at a university abroad, sometimes in co-operation with scholars or scientists in that university.

Improving the competence of the teaching staff and the evaluation of teaching

The university has no plan to prepare its teaching staff in adequate numbers to fill its needs. Reliance is put on advertising vacant posts locally or abroad, mainly in the United States, and on contact with university departments in other universities for possible recommendations. A considerable number of AUB graduates undertake post-graduate studies at the university or abroad on their own. Most of the Arab personnel is recruited among these. The university appoints some of the better candidates for the Master's or the Doctor's degrees as graduate assistants. These are exempt of tuition fees and receive a grant of about \$100 a month to help them with their living expenses. They are supposed to work as assistants in their departments for half-time and study half-time.

Recently, since 1969, the university adopted the practice of helping a member of its teaching staff of some years' standing to complete his academic qualifications by graduate study abroad. He is given his full year's salary and must sign a written declaration that he intends to return to the university. This grant is made to one staff member per faculty per year, for the duration of one year.

Another method of improving the academic staff is through sabbatical and study leave. Sabbatical leave is granted for one year every six years, and one semester for every three years of service. In principle, the staff member who is on a sabbatical leave is supposed to engage in research, to visit university departments in his field, attend scientific congresses and similar activities to broaden his experience, knowledge or ideas. He is not supposed to take a remunerative teaching post during his sabbatical, and if he is to teach, this should not be more than for a quarter-time. In 1970/71 there were sixteen out of 170 academic staff of the A and S Faculty of professorial rank (assistant, associate or full professors) who were on sabbatical or study leave. A further measure for improving the competence of the academic staff is through inviting visiting professors who usually bring with them

new ideas and approaches in their fields and often act as agents of renovation in the departments.

The Dean and Assistant-deans, as well as the chairmen of departments, interviewed were unanimous in declaring that they have no formal way of evaluating the teaching performance of the academic staff. Sooner or later a good or a poor teacher gets to be known, mainly through reactions of the students to him. For the last five semesters a teaching effectiveness form has been used on a voluntary basis for the evaluation by the students of any professor who accepts to have his teaching evaluated. The results of these forms are not supposed to be reported to the Dean's Office and are not usually used by the administration in favour of or against the professor.

Planning the utilization of teaching space

A study was conducted in 1969 of the teaching space needs and space utilization in three of the faculties of the university, of which the A and S Faculty was one. The study took as its points of departure the number of full-time equivalent students, teachers and administrators in the faculty during the first semester of that year. These were converted into space needs in terms of classrooms, laboratories, library space, office space and storage space. The calculations were made on the basis of standard units used in the United States, slightly adapted to local AUB circumstances. The total space needs of the faculty were worked out and came to 124,285 sq. feet (11,550 sq. m.). This operation was repeated in working the projected space needs for the year 1977/78, based on the student and staff estimates of *Programme Analysis IIA*. The needed space came to 137,873 sq. feet (12,813 sq. m.). According to the study, there was an excess of laboratory space and a shortage of office space for the teachers.

7. Conclusion: planning and the future of the AUB

The account about planning the teaching process at the AUB against the background of the Middle Eastern social, economic and educational scene has been largely descriptive. An attempt has been made to document it as far as possible. Here and there points of strength and of weakness have been pointed out. In the following pages the author tries to draw his own conclusions, to provide an interpretation of the situation of the AUB, and to present a possible outlook for the future.

The planning mechanism

The AUB has no unified planning office. There are separate offices under the general direction of the Vice-president for Administration which do some planning, e.g. the Offices of Buildings and Grounds, of the Budget and the recently created Office of Management Information. The Faculties, Schools and Departments

review their activities annually, especially at the time of the preparation of the budget, but few of them, if any, have a clear-cut plan of development, say, for the next five years. On the other hand, the type of planning represented by *Programme Analysis IIA* has had its frustrations, mainly due to lack of funds. Thus, while some planning has been done, there exists no central mechanism at the AUB charged with the task of continuous and co-ordinated planning. For this reason the following recommendations are put forward:

- (a) There should exist at the university a Central Planning Board composed of the Provost, the Vice-president for Administration, and the deans and directors of the seven faculties and schools of the university, assisted by their deputies who are in charge of planning. The functions of this board would be to lay down planning policy based on policy decisions of the Board of Trustees, the Senate, the faculties and the President, to issue directives about planning to the various faculties and offices of the university, to fix priorities between the various projects presented by the faculties and the administrative offices, to decide on fixed targets, to order necessary preliminary studies on which the planning is to be based and to recommend to the President and the Board of Trustees the finalized university-wide plan drafted by the various faculties, schools and services.
- (b) There should be created the post of Director of Planning to be occupied by a highly qualified person in the field of planning, particularly university planning. His responsibility should be to keep in constant touch with the faculties, schools and administrative services, transmit to them the directives of the Planning Board, advise them about their planning activities, train personnel in the theory and methods of planning, receive their plans and, with his staff, work out a draft plan to be submitted to the Central Planning Board.
- (c) Under the Director should be an Office of Planning which would be of the nature of a Secretariat in charge of the detailed activities and studies which the process of planning involves.
- (d) There should be standing planning committees in each faculty and school under the chairmanship of the Dean or Director, or his Deputy. There should also be a planning committee for all the administrative services.
- (e) Following the directives of the Central Planning Board, planning begins in the departments. These should be encouraged to take a long- and short-term view of their desirable development, the first in general terms, the latter in full detail.
- (f) A short intensive course in the theory and methods of planning with special reference to the AUB should be given to all interested chairmen of departments, professors, heads of divisions, planning officers and the like. The aim of the course is as much to facilitate the process of planning, as to create a full consciousness and appreciation of the necessity of planning and to encourage creative developmental thinking about the AUB, its schools and departments.
- (g) One of the fundamental prerequisites of university planning is a clear view of the needs of the environment it is serving—in this case the Arab world and the Middle East. We would recommend, therefore, that panels be organized for

each major area, whether it is agriculture, industry, mining, water resources, medicine and health, social development, education, political development, business or finance. These panels would use their thorough knowledge of their fields to identify basic needs of the Arab and Middle Eastern world. These would serve as guides to the university in its determination of priorities in the development of its own programme.

- (h) Planning must be based on an adequate system of information covering the university and its activities over a number of years so as to bring out the general trends. A central information system should be organized. Information should be computerized so that it can be made easily available for planning and other purposes.
- (i) A small manual of planning might be compiled to serve as a guide to all academic and non-academic personnel engaged in planning. The manual can be revised from year to year as more experience in planning is acquired.
- (j) There should be an annual review of the extent of the execution of the plan and of the difficulties and obstacles encountered leading, where necessary, to adaptations of the plan in the light of the circumstances and of experience. At the same time work towards the next plan with the necessary preparatory studies would be going on. In other words, planning should become a continuous process.

G. Teaching work and research at the State University of New York at Buffalo

by Taher A. Razik,

*Professor, Department of Curriculum Development and Instructional Media,
State University of New York at Buffalo¹*

1. Higher education in the U.S.A.

Education in the United States of America is considered a dynamic force which is largely accountable for societal improvement and preservation. A college education is felt to be a necessity, even a right, while only a few years ago a high-school diploma was considered sufficient. Rather than serving an élite in preparation for specialized occupations, educational opportunity has broadened for upper and middle classes; and, although costs and entrance requirements exist, the consensus is that any student with ability and ambition should be provided with the opportunity of a university education. Thus, many states have enacted increasingly open admissions policies, which in recent years have been tempered by a lack of funds and facilities.

There are approximately 2,525 institutions of post-secondary education in the United States, of which 1,060 are publicly supported and 1,465 are privately supported, enrolling (in 1969) nearly six million and a little more than two million students respectively. It is of note that all of these institutions are under the jurisdiction of their respective states. The national agency which most nearly resembles a centralized education authority is the U.S. Office of Education which serves as an information clearing-house and administers certain programmes authorized and funded by Congress. While over 30 per cent of the 18-20 age group was enrolled in some form of post-secondary education, only 2.3 percent of the GNP was expended on higher education in 1970. In New York State, the University of the State of New York, established in 1789, controls both private and public education at all levels. In 1968 New York State spent a total of \$1.7 thousand million in support of higher education with one-third going to public and two-thirds to private educational institutions.

The State University of New York at Buffalo (SUNYAB) is the largest of the four university centres, enrolling 24,635 in the autumn of 1970. The profile of the enrolment distribution for the university is exemplified by the freshman class of 1,888 students, 49 per cent coming from western New York, 46 per cent from else-

1. Research associate, Rosalind P. De Angelo; research assistants, Patrick J. Nalbone, Delgra Ramroth, Michael G. Ehrenreich.

where in New York State, and the small remainder coming from other states and from foreign countries.

Located in Buffalo, the thirtieth largest city in the country, the university has long recognized the need for a close relationship with the community based on mutual confidence and understanding. At SUNYAB specific attention was directed toward improvement of community relations by the appointment of a Task Force on Community Relations to deal with such matters as clarification and dissemination of policies and information, co-operative actions, and generally better communications.

Given the constitutional reservation of educational matters to the individual states, the University of the State of New York is a legal unit, not a campus, which acts as the highest level of co-ordination and control in the State. It is governed by a Board of Regents who review and approve master plans of development submitted every four years from all its member institutions. The Board's administrative arm is the State Education Department, headed by the Commissioner of Education.

2. The State University of New York at Buffalo

The most important fact in the recent history of the university is its merger with the State University System in 1962. Prior to its merger, the former University of Buffalo was a private, locally oriented and easily operated institution. Since 1962 it has become the largest university centre in the State, reaching an enrolment of nearly 25,000 in 1970.

The State University of New York (SUNY), of which the State University of New York at Buffalo (SUNYAB) is a member, is governed by a Board of Trustees. It was created and is governed by the laws of the legislature, and its financial operations are ordered through the State budgetary division.

The 1962 merger of the University of Buffalo with SUNY was two-fold in purpose: for SUNY it was a matter of more economically meeting its responsibility of public education by absorbing an already existing institution; and for the University of Buffalo it was an opportunity to become one of the nation's finest universities, free from the limitations of private funding. The effects of the merger included: the reduction of tuition and fees; increased enrolment; the shift of non-faculty personnel to civil service status; an abundance of funds, but also the intricacies of operating within State budgetary conditions; severe shortages of facilities; increased research; differentiation within disciplinary departments; and loss of simple governance by a local council and chancellor.

Within the decade drastic re-organizational changes took shape. The most significant academic change and planning was the new organization of faculties and colleges. Seven faculties were designed, coupling the theoretical with the practical schools. A number of colleges, independent of the faculties and intended to meet the more immediate interests of the students, were created. Further, cross-disciplinary connexions were established through the divisions, primarily for administra-

tive cohesion. Student and faculty governance shifted to individual and then representative voting. By 1970 a sense of 'change fatigue' was generally felt within the university. So much had come to pass.

Levels of decision-making and planning

If the merger was initiated in response to the growing magnitude of costs and complexities of state-supported higher education, it seemingly also offered a coordinated manner of dealing with many aspects of university activities which include decision-making and planning.

While all the following areas are shared by both the central and local administrations, with the exception of the first which is solely central, the preponderance of responsibility rests at the local level: the basic nature and purpose of the campus; the academic programmes to achieve that purpose; curricula, instruction and research; faculty affairs; student admission and enrolment.

Within the context of the Master Plan for overall development initiated by the Board of Trustees, the individual universities must submit quadrennial master plans that act as guidelines for growth, in an open and informal manner which allows for maximum transmission of opinions and ideas before implementation. Deriving these quadrennial plans involves several different stages of discussion and review between the universities, and this provides excellent opportunities for reflection and evaluation at the member campuses. During the summer and fall of 1971, six symposia and a research panel were conducted to formulate a variety of questions, ideas, opinions and alternatives about the future directions of the university in six important areas: structure and governance; the delivery of educational services; the teaching-learning process; the quality of the campus experience; the campus and external relationships—financial and other resources; and research. In the next phase, the various campuses were asked to provide their own reactions, alternatives and analyses on these same issues in a university-wide perspective, with the symposia papers as a stimulus. The succeeding phases will be concerned with drafting and consultation of the final document which will be submitted to the Board of Regents and the Governor as the 1972 Master Plan.

Involving a different notion of planning from that of manpower needs or even predictive analyses, the character of the Master Plan for 1972 is more that of a set of developed options which may be implemented at appropriate times, thus stressing desirables rather than exigencies.

In addition, for planning at the state level the SUNY Office for Educational Development and the Central Office for Planning are responsible for the assessing of information and the continuation of academic innovation.

Locally, the most formal mechanism of planning is that of the Faculty Senate Committee on Educational Planning and Policy, reviewing and recommending on educational issues. Also the Office of Facilities Planning deals with problems of space utilization. Less formally yet more pervasively, the decision-making process within departments constitutes a significant source of academic planning.

At the regional level, SUNYAB is a member of the recently formed Western New

York Consortium for Higher Education which hopes to develop support programmes for the individual institutions and generate improvements in many administrative areas.

A further clarification of the planning process must be presented here before going into the teaching and research sections of the report. The kind of planning upon which the case studies were proposed is one in which a thorough rationalizing of procedures for the development of the university was anticipated. The notion of a university fully and immediately responsive in an integrated manner to the various tendencies within a rapidly changing socio-economic environment could be misleading with regard to the general sense of planning within American universities. It is necessary to be aware of the relatively autonomous development of American universities and the nature of political processes within the individualistic tradition of the country. Given these, much of the sense of planning at the university has depended upon a level of assumed agreement, of shared pre-suppositions, about the general direction of the university. This is a level of consciousness not easily described. Perhaps the nearest term for this foundation of planning would be that of consensus-building. The decision-making process at SUNYAB involves a large portion of those concerned and this very number would, on the one hand, belie any sense of specific unity about the direction of the university, while on the other, indicate the real, already present, agreement in the responses of those involved. For, one criterion, a somewhat unspoken one, is exactly this vague sense of 'fit' in raising certain members of the faculty to the more proximate positions of decision. This is the consensus at work; the planning is already there in the sense that the hierarchy of reviewers of policy have to a large extent previously passed through the discrimination of their adherence to the vaguely perceived, yet felt, notions of what the consensus already is. Admittedly, such a basis for planning is not easily discernible behind the seemingly inadequate formal mechanisms, yet it is precisely its vagueness which allows for a considerable amount of leeway and mix of more rationalized opinions on a given item. Persons with differing opinions may argue, within limits, that *their* definition more truly partakes of the consensus than that of another.

What makes this situation of consensus-building rather critical is that the notion of planning introduced from recent styles of business management does not allow, relatively speaking, for such an informal system of planning to be fully acceptable. Within the concept of totalization of a system—the thorough rationalizing of administration—there is the necessity for explicit articulation of goals; and this is much more difficult with regard to the university and the consensus upon which planning rests. The position of the Faculty Senate as a legislative branch of the faculty, which is yet essentially an advisory board with all of its powers resting in recommendations to the President, is significant. Such a position seems powerless and yet while technically the administration can overrule virtually any Senate decision, actually, this is seldom if ever done. To do so would quickly erode the faculty's confidence in the administration. It is certain that without the support of the faculty, no administration can expect to implement its policies either smoothly or efficiently. Finally, it must be remembered that most of the academic decision-

making is at the departmental level which is the broadest base of the Faculty Senate itself.

3. *The organization and planning of teaching*

Academically, the university is organized around two main structures, the Faculty System and the Collegiate System, through which most full-time courses are offered. The activities of the Faculties and Colleges are co-ordinated by the Division of Undergraduate Studies and the Division of Graduate Studies in the main, and to a lesser extent, by the Division of Continuing Education and the Division of Summer Session.

Within the Faculty System, which is by far the broadest and most sophisticated of the structures, there are seven faculties¹ which are both teaching and research units headed by provosts. Even though every faculty has developed its own by-laws, the similarity among the decision-making participation procedures is striking. Most of the reviewing and advising on academic issues is done by a representative committee composed of elected faculty members. This process is at the departmental level, and it is a cyclical and hierarchical system of checkpoints with each step in the process representing a portion of the reviewing-evaluating mechanisms that ensures both educationally valid curricula as well as sound use of funds and resources. The process is cyclical since it begins with departmental initiation and returns there for implementation; it is hierarchical since approval must be gained at succeeding levels before any additions or changes are made at SUNYAB.

The Collegiate System, an excellent example of a mechanism that allows for short-term planning, is designed to supplement and complement existing programmes. It is composed of fifteen non-degree-granting colleges offering courses that are the expressed concerns of its constituents. They are more temporary and flexible than most courses offered through the Faculty System. The colleges may offer either credit or credit-free programmes, some of which are on an experimental basis. The emphasis in all cases is on developing programmes which are designed to meet individual student needs, with a focus on the *undergraduate* level. The name 'colleges' in some way is misleading since the term is commonly associated with some kind of residential setting. The colleges at SUNYAB were introduced primarily to enrich the students' educational experience; unfortunately, residential facilities have been largely unavailable. The basic characteristics of the Collegiate System are an essential temporariness or flexibility and the ability to respond to the expressed concerns of its constituents, without committing the entire institution to a long-term policy.

The university's four main divisions were designed to be co-ordinating units which would decentralize the administrative responsibilities of academic opera-

1. Faculties of Arts and Letters, Educational Studies, Engineering and Applied Science, Law and Jurisprudence, Natural Sciences and Mathematics, Social Sciences and Administration, and Health Sciences.

tions. Essentially, the divisions cut across the seven faculties and the fifteen colleges. They recommend the granting of degrees and they offer and assist the functioning of the academic programmes especially through the Policy Committee and the Curriculum Committee.

SUNYAB's educational programmes

In 1967, university planners conceived of SUNYAB as a centre for education and research directed toward the study of man and his environment—from molecules to populations, from interstellar signals to political conflict, from extinct cultures to contemporary forms of art—a centre offering opportunities to understand the essential unity of the search for all knowledge, while mastering specializations.

New programmes sponsored by the university are generally initiated at the departmental level by the teaching staff itself. Following approval by a curriculum committee, the suggested programme is discussed and voted upon by the entire teaching staff of the department. Thus the development of new courses and programmes according to departmental objectives is essentially the function of the instructors who decide to teach them. Thus, while no formal curriculum planning occurs on a university-wide basis, individual faculty initiative and responsibility are fostered. The Division of Undergraduate Studies alone offers seventy degree programmes.

The university conducts a number of experimental programmes, many of which are offered by the colleges. In all the colleges there is an emphasis on developing programmes which are designed to meet individual student needs, and thus there is a *large degree of student participation in their planning*. A special instance of this is the Bulletin Board Courses which can be initiated by a group of any twenty students, designed by them and co-operating teaching staff, to continue for a semester after initial, minimal review. In addition, there are a number of educational programmes, not associated with the academic structure of the faculties and colleges, which are characterized by their ability to satisfy the unique needs of particular student populations. One such programme, for instance, is the Experimental Program in Independent Studies (EPIS) whose purpose is to broaden educational opportunity, recruiting students on the basis of *potential*, rather than their academic ability as demonstrated in high school. EPIS, however, is more than an academic procedure for minority groups (its main constituency): it serves to link SUNYAB with the local community.

Faculty teaching loads, promotion and evaluation

Although the amount of time a faculty member spends in teaching is not strictly regulated, nevertheless it is a factor in determining promotion and tenure. The general university-wide policy is based upon the expectation of a twelve-hour load as the weekly norm. Exceptions to this are made at departmental and divisional levels. A recent survey revealed that professors of all ranks averaged 56.1 hours a week on the job, spending about seven hours in the classroom. Comparatively,

those who teach and engage in substantial research carry more teaching load hours than those who teach and discharge administrative responsibilities.

Classroom hours also fluctuated from one discipline to another. Engineering faculty members spent a significant part of their time in the laboratory and 6.48 hours a week in class, while education professors averaged 8.08 hours weekly in class not counting laboratory work.

Senior faculty members reported spending approximately a quarter of their time in instruction and preparation, while junior faculty members spent almost half of their time in these pursuits. Personal or departmental research and writing accounted for 21 per cent of their time, as against 7 per cent on sponsored writing and research. Administrative chores took up about 17 per cent of their time! Sixty-two per cent of departments report that they specify the amount of time a faculty member must spend on teaching (in particular, *all* the departments in Arts and Letters, and in Law and Jurisprudence). And, at the same time, the State Government has begun to interest itself in regulating teaching hours in universities.

What has been codified in considerable detail are the equivalences for calculating the variety of instruction loads, administrative responsibilities and research activities, so as to bring the university's manpower resources and work-obligations, its in-puts and out-puts, into some kind of balance, a balance which is also used in budgetary and facilities planning. (These are set out in full in the main case study to be published in Vol. IV.).

The promotion of faculty staff and their tenure are managed through departmental committees, and questions of promotion have to be considered and decided at regular intervals, on the basis of scholarly and teaching achievement, university service and public service. Traditionally, the university has failed to recognize and reward good teaching. In the last few years, a Student Course and Teacher Evaluation Project (SCATE) has been operating with a view to improving the quality of teaching and courses, and to provide students with an accurate appraisal of all available courses and professors. Moreover, SCATE's questionnaires, which are distributed during final-examination week, enable students to voice their criticisms and have an influence on the teaching they are offered, though so far only in some faculties.

Other mechanisms for evaluating teaching quality have been initiated by the individual faculties. For example, the Faculty of Natural Science and Mathematics has attempted a rigorous examination of teaching methods, and its Committee for Instructional Evaluation, calling for a firm commitment to excellence in teaching, has recommended that evaluation of teaching ability become required as a formal and regular criterion in addition to other criteria, as a basis for tenure, advancement and promotion questions.

Such research as has been done into methods of instruction, in particular one study of fifty undergraduate courses, confirms that the instructional methods employed in the courses, with very few exceptions, are quite similar regardless of instructional personnel or field of study: teaching procedures appear to be conventional. Moreover, it seems that the least experienced and youngest staff

control the classroom, although it is the department which is responsible for course content.

Students at the university

The SUNYAB philosophy is that undergraduates should exercise considerable responsibility in structuring their own academic programmes, particularly in the choice of electives. The Division of Undergraduate Studies has set out the following requirements for attaining the bachelor's degree:

- (a) A minimum of thirty-two hours of electives from the areas of: Humanities, Sciences and Technology, Educational Studies . . . ;
- (b) A coherent 'major' programme, or an individual field of study of the student's own conception.

Since 1967, the university's academic structure has been reorganized so as to allow as much student involvement as possible in the design of individual academic programs and to include student representation in the organization and administration of the university's academic programme.

The registration, computerized by the university's data processing centre, serves as the major source for information necessary for instruction. The Student Academic Records Administration (SARA) facilitates the total management of SUNYAB. A university-wide, computerized information system is a long-range goal that is currently being implemented in stages.

Students are admitted to undergraduate courses either straight from high school or from other colleges. The general admissions policy has been to admit the best-qualified students first. However, the university is anxious to admit more 'disadvantaged' students, and they are offered remedial programmes to prepare them to meet the requirements of the regular academic programme. But, as yet, it has been found very difficult to work out valid criteria for the admission of these students.

Admission to the graduate courses is handled by each department, which determines its own criteria.

The university also provides academic programmes for adult students of a suitable standard who are engaged in full-time work in the community area and who are married or have family responsibilities.

The amount and type of student influence on decisions regarding instruction varies among the six student organizations. The undergraduate 'Student Association' only has the power to make recommendations, upon which further action must be taken by the administration. As a result, many of the student-initiated programmes do not reach their intended ends and are essentially unsuccessful. On the other hand, by maintaining open communication with their Faculty and Dean, the Dental Student Association and the Student Bar Association have been effectively involved in the design and policy-making of their schools. And, if it is ratified, a recently proposed universitywide Governing Body would create channels for direct student representation in determining matters in which they previously had little power.

The means by which a university evaluates student performance is an important index of the institution's overall view of education. In 1968 SUNYAB established an evaluation system based upon three major assumptions:

- (a) The evaluation system is an active determinant of student learning;
- (b) The effectiveness of any single evaluation system varies among different students, different instructors, different courses, and different disciplines.
- (c) Students can and should be given considerable responsibility in the design of their individual academic programmes.

The assumptions became the basis of a system of evaluation which involves the following alternatives:

- (i) Letter grading (A, outstanding; B, above average; C, average; D, below average or marginal; F, failure);
- (ii) Written descriptions of student performance;
- (iii) Satisfactory/unsatisfactory grading (the grade of S would earn credit; a grade of U would not).

While any professor in any course may, with the approval of the appropriate academic committee, designate one of these forms of evaluation for that course, it is possible for students, with his agreement, to opt for one of the other forms of evaluation. Also, no university-wide rankings of students are computed.

This system is considered quite liberal and flexible by many of the university community. Through these means, students are given enough options to enable them to work harder on certain courses which may be more important to them (e.g., those required for major fields) and to spend less time on elective courses without being penalized for lower grades in those 'electives' in which they might be competing with students majoring in those fields. An alternative system, as proposed by opponents of the present one, would place a greater emphasis on the teaching-learning relationship of the faculty member and his individual students as a dynamic and complex process, and would have less regard for external evaluators.

Planning the use of the university's space and facilities

The administration of space both for on- and off-campus facilities is the responsibility of the Office for Facilities Planning (OFFP). Upon receiving the stated needs of each of the seven faculties and other university units, a programme is developed that translates those needs to specific spatial quantities.

At SUNYAB the problems of allotting space and facilities are complicated by the following factors:

- (a) A division of facilities on several campus sites;
- (b) A phasing stage as new facilities become available on the new North Campus; and
- (c) A general condition of overcrowding.

Essentially, facility problems centre around three tasks:

- (a) How to allocate available space as it is needed now;
- (b) How to distribute new space as it becomes available;

(c) How to rehabilitate and distribute vacated space as it becomes available.

In order to accomplish these tasks the Logistic and Occupancy Phasing of the OFP collects and analyses an enormous amount of computerized data, one aspect of which involves the proration of space. However, before it can be prorated, inventories must be taken and the following questions asked:

(a) Where is the space—how to identify it?

(b) Who currently controls the space?

(c) What is the physical space?

(d) What function or purpose does the space currently serve?

During the fiscal year 1970, the OFP successfully co-ordinated space re-allocations which reduced several of the severest over-occupancies to acceptable levels. It also developed a series of occupancy studies which have provided a predictive capability for class schedules, bussing requirements and rental space flexibility.

But no matter how sophisticated a computer programme may be, it cannot solve the basic problems of overcrowding, which is one of the major problems now facing SUNYAB because of the enormous recent increase in students, faculty and staff without a corresponding growth in facilities.

On the basis of data now being gathered, the OFP is developing a plan for phasing into the new North Campus facilities through the use of computer modelling and standardized data collections.

As projected by SUNY, in 1975 the university is to provide facilities for a total of 36,700 full-time and part-time students. To accomplish this the design and construction of more than 8.25 million net square feet of space on the 1,200 acre Amherst site (North Campus facility) is planned. This complex when completed will accommodate an on-site population of over 50,000 students, faculty and staff.

The scale, complexity and co-ordination of this project required the State University Construction Fund (SUCF—a State agency) to create an organizational framework and develop new techniques to augment the traditional planning process. More than twenty planning firms are now working in a co-ordinated effort under the Fund's direction to ensure that the resultant facilities not only satisfy the university's programme, but also realize the full potential of the site.

Additionally, the Office of Computer Services (OSC) provides the entire SUNYAB community with academic, administrative and research computer services. All computerized administrative functions are the responsibility of the OSC and the Management Information System (MIS) Committee who advise the Assistant Executive Vice-president. SUNYAB is anticipating the eventual integration of management systems on a common data base which would provide the ideal climate for the development of efficient and far-sighted management systems.

One of the university's most important resource facilities is its libraries, and yet the principal factor affecting the university libraries' ability to support the instructional, research and public service activities of the university is the inadequacy of their space. None the less, the libraries provide generally an adequate support to most aspects of existing educational programmes, although there are some difficult problems in matching collections and programmes because of the very rapid changes in the character of the academic programmes.

Availability or accessibility is perhaps the most fundamental measure of the value of any library system. Materials become inaccessible either because they cannot be reached or because they cannot be found. The libraries have both problems.

Ironically, as the collection grows, it is becoming less useful to the university it should serve. There is little information about the use of the library other than the conventional information about circulation and inhouse use of materials; these figures do not seem very high compared with other institutions of similar size. What is more, the libraries are acquiring their resources at a decreasing rate, which is not adequate to the needs of the university's academic programmes, and which has led to a lack of depth of the collection in main areas as well as a lack of multiple copies of essential material. Circumstances have dictated that the present library, under tremendous daily pressure to meet user needs, be operated on a contingency basis which leaves little room for university-wide participation in the planning process. However, the impending move to the new campus has at last afforded the opportunity for planning that can be relatively long-range in nature.

The budget system

Though the philosophic intention of the financial sub-system at SUNYAB is to be 'the plan of expenditures that reflects educational process in fiscal terms', at present there seems to be a trend towards the budget leading rather than reflecting the direction of academic decision-making. Budgetary decisions are made on the basis of staff and physical resource needs, with little input from the teaching and research components of SUNYAB. That the officers in charge of budgetary allocation often determine SUNYAB directions is apparent to them as well as the administration, who agree that protection against budgetary leadership should be a function of a strong academic element of SUNYAB. This academic element should endeavour to insure its own directions by making internal decisions based on the evaluation of the success of its programmes and then aligning budgetary allocations accordingly. The problem doesn't seem to be one of generating information on which to base decisions, but rather one of expeditiously collecting and integrating this information.

In an effort to encourage this approach, SUNYAB officials have initiated a number of procedures that have facilitated decision-making from an academic point of view. An example is the priority programmes analysis of the Division of Graduate Studies, which attempts to determine which programmes should be allowed to expand, remain constant or be phased out. Through focusing on the strengths and needs of the university, rather than using an across-the-board cut-back when allocating funds for departmental use, it is hoped that the funds will be used in the most productive way.

Of all the fundamental mechanisms and operations which comprise a university's management/planning system, the budget system is predictably the most important and influential on administration decision-making.

When the University of Buffalo was incorporated into the State University of New York, its financial operation became subject to the rules and regulations of

the State, whose State financial system is one of the most sophisticated budgetary systems of large-scale government. It is a completely computerized system which integrates planning with fiscal control for all state agencies.

Subsequently, the State established for higher education a structure which presumes centralized budgetary management which is designed to gather and assess data for higher education units. Essentially, it is the responsibility of the university President to see that his institution fulfils its educational mandate, within the financial framework dictated by the Governor, the Governor's various administrative offices and the State Legislature. Theoretically, therefore, no disparity should exist between what the university does and what the State expects in terms of monies it appropriates and the goals it sets forth.

The University Budget Office promotes decentralized budgeting and recognizes the school or division as an autonomous 'budgeted entity' with its own programme, budget and accounting identity. There are twenty-one such major operating divisions.

Within these divisions are 382 departments or 'budgeted entities', of which 143 are instructional, and each of which prepares an annual budget request. In the case of academic programmes and departments the request must be justified in terms of long-range goals as expressed in the Academic Plan. All budgeted entities, however, must justify their budget requests in terms of four specific areas which are totalled, correlated and adjusted for each Major Operation Division and for the university as a whole. These four areas are:

- (a) Workload (ongoing and increased);
- (b) Improvement (of an existing programme);
- (c) New programmes;
- (d) Development (out of an existing programme).

Each of these areas is used to determine the needs of the budgeted entity in terms of instructional and non-instructional staffing requirements, temporary services, supplies and expenses, equipment related to new instructional positions and equipment in general.

The Budget Office is charged with the supervision of operating divisions and subsidiary budgeted entities in preparing their budget requests. As co-ordinating agency, the Budget Office consolidates the entire institutional budget, and this budget is then sent to the Office of the President who reviews it and may adjust or approve it as he sees fit.

The final internal action on the budget request is its preparation for *informal* presentation to the SUNY Central Administration.

SUNY Central Administration Review—the presentation to the SUNY Central Administration is actually a Preliminary Budget Request. This request, which is usually in great detail, is reviewed by the Chancellor of the State University in a session with the President of the University Centre (i.e Buffalo). The State's Central Administration then develops its overall budget after reviewing all the individual university and unit budgets submitted to it, interrelating the gains and losses of each campus. After further discussions and trimming, when the budget

request is finally approved it becomes an official part of the Governor's Executive Budget, which in turn is sent to the State Legislature.

The complete cycle takes as much as eighteen months to complete; and it is not unusual for the university to be operating for several months without knowing whether its current budget has been *officially* approved.

By way of conclusion, the following comment is taken from a 1970 'memorandum' prepared by the University Office of Institutional Research: 'The formula approach to resource allocation in higher education suffers two intrinsic defects: it inhibits (perhaps it prevents) needed educational change and it too *frequently fails to reserve educational decisions to educators*. Yet a fiscal "*carte blanche*" to educators, given solely on the basis that non-educators are unqualified to pass competently on educational matters, is no more wise than it is feasible. The interest which states maintain in the fiscal accountability of the recipients of their tax monies, including educators, is wholly legitimate.

'The difficulty is that most budgetary arrangements, and especially the formula budget, generally involve fiscal *control* (of the institutions by the State), and fiscal control is for all practical purposes educational control. What is needed instead is a fiscal system which holds educators accountable but which permits them a wide latitude of discretion in educational concerns.'

The evaluation of the university

At present, there exists no integrated means of evaluating the university. The current system of evaluation is relatively uncoordinated and, as a result, the carefully planned university budget must be considered as the only evaluative mechanism. It is hoped that a viable university-wide system will soon be developed, involving:

- (a) A clear statement of university goals;
- (b) A teaching evaluation model based on this statement of goals;
- (c) A highly trained staff (including psychometricians and specialists in instruction) to design and assess various evaluative instruments;
- (d) Extensive computer programming and data processing services;
- (e) Special faculty and student evaluation committees to interpret findings and make recommendations at the level of individual instruction and university planning;
- (f) The acceptance by the faculty of the relevance of such evaluation to their work.

The item is particularly important in view of the independence which Faculty claim for their teaching roles.

The entire State University system, including SUNYAB, is accredited by the Middle States Association of Colleges and Secondary Schools, an independent organization established in 1887 for the improvement of educational institutions and for the development of better working relations among secondary schools, institutions of higher education, and other education agencies in the Middle States. Membership follows accreditation.

Accreditation, which must be reaffirmed at approximately ten-year intervals,

concerns the whole institution and is based on an institution's own objectives for its students. It does not imply similarity of aims, uniformity of process, or comparability of institutions. The most significant aspect of accreditation is its effect only upon the institution itself. The evaluation process requires that each member institution periodically review its own concepts, goals and operations, supported by the expert professional criticism of a visiting team. This team must supplement, through personal observation and inquiry, the analysis provided by the self-study report, and assess the institution's performance and potential in qualitative terms.

After the visiting team has made its report, the Commission may recommend accreditation, a deferred decision pending reports, or denial of accreditation. Striving for a charter of excellence, the university under scrutiny seeks prestige and the recognition of other member institutions. The State University of New York at Buffalo is currently preparing for a Middle States Evaluation.

Since October of 1969, the Graduate Division has been in the process of evaluating existing higher-degree programmes, the main evaluative instrument being a committee of recognized scholars and faculty members not associated with the SUNY system or the particular programme.

Each evaluation team develops its own sets of questions on the goals, rationale, quality and resources of the programme, and the actual evaluation, which occurs for several months or a year, involves a series of committee meetings with the Dean, faculty members, students and others. Out of this process, the Evaluation Committee identifies the strengths and weaknesses and may provide recommendations for the further development of the programme. The final report goes to the State Education Department, where the final decision is made. Each programme given full approval is reviewed every five years using the above procedure. In the case of provisional approval, the programme is subject to continuing scrutiny. Programmes which are not approved may be resubmitted for review, or simply phased out.

Finally, there is an Undergraduate Office of Evaluation responsible for improving the learning climate at SUNYAB. But this office has been restricted in its operation by a lack of personnel and resources, and thus has had little or no impact on the ongoing academic operations of SUNYAB.

4. The organization and planning of research

No formal mechanism for long-term research planning currently exists at SUNYAB. But the State University of New York has recently attempted to design one for its entire system, which seeks to answer two main questions:

- (a) Should the research effort be focused in specifically designated research areas or should it arise out of the work of the faculty at large?
- (b) To what degree are research and teaching mutually exclusive and to what degree are they interdependent?

During the last decade at SUNYAB, health and health-related science research has repeatedly been the most heavily supported area of research, due to the large

numbers of federally funded health-related grants. The Faculty of Health Sciences alone was responsible in the period 1967-70 for more than 60 per cent of all sponsored research expenditures. In contrast, the entire Faculty of Arts and Letters spent less than 1 per cent of the total university research expenditures in 1969/70. Moreover, research expenditures of this faculty actually decreased 62 per cent, compared to the previous year, compared to an increase of 12 per cent for the Faculty of Health Sciences, 39 per cent for the Faculty of Engineering and Applied Sciences, and 20 per cent for the Faculty of Social Sciences and Administration.

The SUNYAB Committee for the Distribution of Institutional Funds awards grants to each of the seven faculties to support research and creative activity. Funds are distributed where they will make a maximum contribution according to a formula of allocation being based on full-time faculty members, and on the need and quality of proposals.

Research organization and funding

Once a research area is decided upon, a faculty member submits his proposals. His colleagues may assist him in the initial preparation, although faculty competition for grants often precludes such co-operation.

The proposal is routed from researcher to department chairman to Provost to the Office of the Vice-president for Research. After review, it is forwarded directly to the appropriate funding agency or channelled through the Research Foundation of SUNY. The factors implicit in this process are quality evaluation, resource requirements, and the selection of the proper funding agency for each submitted proposal.

Clearly, the likelihood of funding a submitted proposal depends on the quality of the proposal, the support level requested and the proposal's conformity to institutional and agency policy.

There are two main agencies at SUNYAB for the raising and the administration of research funds: the Research Foundation; and the University of Buffalo Foundation. Of these two mechanisms, the Research Foundation is the more important.

The Research Foundation of SUNY is essentially a private and independent foundation, whose main purpose is to provide and administer funds other than State appropriations for university research and also to provide an awards programme to encourage scholarly and creative activities. Funds are given in the form of grants-in-aid and research fellowships.

The Research Foundation does not undertake fund-raising nor does it handle funds which originate as appropriations of the New York State Legislature. Also it does not evaluate applications for content; this is the responsibility of the local campus administration. But it is the Research Foundation's responsibility to ensure that funds are properly utilized, and generally to encourage scholarship and research.

For review purposes, all awards are classified under four headings: *Social Sciences, Humanities, Natural Sciences* or *Arts* (including creative work and critical studies). All applications are evaluated by the University Awards Committee.

The overall programme offers either *small* awards ranging from \$100 to \$3,200,

or larger awards up to \$11,600. In evaluating applications the Committee considers capability and seriousness of the applicant and the value of the proposed project. Evaluation of the merit of the project itself is largely a matter of judgement by the committee but this may well be influenced by the recommendations of senior scholars. The manner in which the application is proposed is often significant. The central office of the Foundation in Albany has been increasingly computerizing its operations in order to make more significant data more readily available for application development.

The following are considered unacceptable projects in regards to Research Foundation Awards:

- (a) Those activities which are aimed primarily toward personal gain;
- (b) Applications concerned only with instructional materials or techniques;
- (c) Textbook preparation;
- (d) Activities which ordinarily pay their own way or from which income is derived;
- (e) Studies restricted to local problems in the administration or operation of an institution;
- (f) Studies to be used for a thesis or doctoral dissertation; and
- (g) Applications seeking capital construction, major rehabilitation and support of conference-type meetings.

The principal investigator is responsible for submitting a final report summarizing the activities pursued and results achieved at the completion of the project.

The University of Buffalo Foundation, Inc. is a private non-profit corporation formed ten years ago to provide private resources for enrichment of academic programmes and services at the university and to help complete the financial requirements of the programming of SUNYAB. For SUNYAB is acutely aware that the full realization of its future plans depends upon adequate funding from the private as well as the public sector. It is clear that SUNYAB cannot exist solely on what dollars the State will supply in the next few years. In total, the Foundation has raised more than \$13 million during the past nine years, but it needs to increase the level of this support to \$5 million per annum for 1973/74.

5. Final comments

SUNYAB has experienced enormous growth over a relatively short period of time. It increased its budget, staff, enrolment, buildings and library holdings in geometric proportions. As a result, constancy, levelling-off and stability seem to be in the minds of both university planners and managers. They recognize that the decade of the 70s will be one of change. It is apparent that SUNYAB must deliberately define ways of designing and maintaining stability, yet at the same time provide flexible mechanisms for change.

The economic strain which has limited the growth SUNYAB expected in programmes, building, salaries, etc., has had a reflective effect. Departments have been scrutinized and only the most worthwhile programmes will be supported. The Master Plan preparations, together with the visitation of the Middle States Com-

mission for Accreditation, are forcing SUNYAB even further to reflect and examine its objectives and their implementation. This self-examination can also serve to re-stabilize the university so that it may emerge with directions set for the 70s.

While stability is paramount, flexibility shares the same priority. The problem here is how to reconcile the legitimate concerns of the university managers and administration and of the faculty. To a planner within management, it may seem clear that a particular programme should be phased out; and yet to the faculty, and not only to those involved in teaching the programme, it may seem far from clear. The two groups at SUNYAB both think of themselves as flexible and open-minded, and yet they will almost inevitably be using different criteria and indices; and both may be working on different assumptions from the officers in SUNY's Central Administration.

Another challenge the university must face is that of community accountability. A recent study analysed the effect and impact of the university on the incomes of the population in the Buffalo area. SUNYAB, its faculty, staff and students generated a total local income of \$91,563,000 in Buffalo and Erie County during 1970.

Summaries of the case studies

V. Planning of research work

A. Organization of the research work at the West Pakistan University of Engineering and Technology

by Kh. Masud Al Hassan,
*Professor of Mechanical Engineering, West Pakistan
University of Engineering and Technology*

1. The West Pakistan University of Engineering and Technology: a case study

The West Pakistan University of Engineering and Technology started functioning in November 1961 on the campus of the ex-Government College of Engineering and Technology, Lahore.

It was established with the following objectives in view:

- (a) To raise the standard of education in engineering and technology;
- (b) To provide qualified manpower to fulfil the needs of technical personnel required in the execution of important development schemes in the fields of industry, power and irrigation;
- (c) To offer broad progress of teaching and research in a wide variety of technologies at both the undergraduate and post-graduate levels.

Promotion of scientific, technical and professional education was emphasized for the first time in the report of the Commission on National Education in 1960, although the dire need for high-level manpower in Pakistan was realized soon after independence (1947). The type of engineer which Pakistan needed was one with 'vision and leadership, determination to grapple with local problems and materials, and a very broad training in modern engineering and technology'. The engineering colleges functioning in the country were not nearing this goal, since the most important ingredients which could inculcate these qualities were absent: research and development were not carried out in these institutions. To improve conditions, the Government of Pakistan decided to establish two technical universities because it was thought that scholarship, creative activity and research could best flourish in an institution of the status and with the autonomy of a university. The Government College of Engineering and Technology at Lahore was selected for conversion into one of these universities for the following reasons:

- (a) The college was situated in a city where a great deal of intellectual, scientific and engineering activity was going on;
- (b) Research and development facilities were available in the Irrigation Research Institute, Road and Building Research Laboratory and Pakistan Western Railway Workshops;

- (c) Scope for future expansion on land surrounding the college was easily available;
- (d) This college was comparatively better staffed; and
- (e) It had a large number of departments compared to other engineering colleges and also its output in terms of number of graduates was as great as could be expected.

There is no doubt that the creation of this university was prompted by the idea of producing 'creative' professional engineers and technologists and of 'initiating' and 'developing' research and development activity in the profession.

The Governor of the Province is the Chancellor of all the universities in that Province, which in the case of Punjab are the University of the Punjab, the University of Engineering and Technology and the Agricultural University. The Chancellor is the supreme executive head of the university and he appoints the Vice-chancellor on such terms and conditions as he may determine. The Vice-chancellor is the principal executive and academic officer of the university. He presides at the meetings of the Syndicate, Academic Council, Selection Board, Committee for Advanced Studies and Research and Planning and Development Committees.

The university is totally financed by the government and the grants are administered by the Provincial Department of Education.

The first project report for the development of the university was prepared to coincide with the Second National Five-year Plan (1960-65), and included the institution of post-graduate studies and research work and the award of M.Sc. degrees during the Second Plan period. The award of Ph.D. degrees was contemplated for the Third Plan period (1965-70).

Between 1961 and 1971 the undergraduate number rose from 569 to 2,445 and the post-graduate number from 8 to 100. The average annual growth of 16 per cent in enrolment has been matched by almost the same rate of increase in the teaching staff.

The quality of the staff has gone up significantly, for while there were only four teachers out of a total of thirty-six with a doctorate degree in 1961/62, there are forty-eight teachers with a doctorate degree out of a total of 146 in 1971/72.

The quality of the teaching staff was improved mostly by sending them abroad on fellowships and scholarships under aided programmes. Although this should have increased the research and development activity of the university, it has not been the case because of:

- (a) High undergraduate teaching loads for the teachers in civil, mechanical and electrical engineering departments. These are the departments which could contribute substantially to the research effort of the university. The high teaching load is due to the absence of teachers abroad on study leave;
- (b) Shortage of physical facilities; and
- (c) Difficulties and uncertainties in the social and economic state of the country. The university, however, attempted to do a lot in the field of research activities. Four per cent of the total university budget was earmarked for research in 1963/64, out of which no money was spent that year. In addition to the difficulties mentioned above, there was the absence of an 'infrastructure' for research activity and of a

tradition for research work among the teachers. Despite the support of the university authorities, the failure of research activities is striking. It is the analysis of the reasons for such failure, the investigation of attempts to overcome the difficulties in the socio-economic context of a developing country, which make the case study very useful and interesting.

2. Higher education in Pakistan and its relation to the economic and social structure of the country

The education system

Pakistan became independent of British rule in 1947. The educational system left by the British was not adequate to meet the needs and requirements of the nation. A Commission on National Education was set up by the President of Pakistan in 1958 and entrusted with the task of reviewing the educational system and recommending appropriate measures for its re-orientation and reorganization, so as to ensure an integrated and balanced development of education in successive stages. The Commission submitted its report in 1959 and as a result of one of its recommendations, the West Pakistan University of Engineering and Technology was established by raising the status of the Government College of Engineering and Technology, Lahore. Attention was also to be paid to co-ordinating the work of the universities in different fields and to establishing a system of selective admissions based on aptitude and ability. The importance of education as a means of realizing social and economic goals was appreciated for the first time. Pakistan initiated its five-year plan in 1955 for social and economic development.

Although the total amount allocated to education and training has increased more than six times during the first three plan periods, the percentage allocated to education has remained more or less the same.

The contribution of technical and engineering education to the development of Pakistan, a country with one of the lowest GNP *per capita*, can hardly be over-emphasized. The structural change in GNP indicates the rising contribution of manufacturing and construction sectors to the national wealth. This trend also makes it more desirable to develop technical and engineering education further in the country—on the right lines, of course—by giving sufficient importance to research and development activity at the higher echelons.

During the last fourteen years the government of Pakistan has announced four national policies to ameliorate the educational system in the country. The first one has been mentioned above, but the recommendations could not be implemented. One of the reasons cited was the opposition of the student community to the reforms. A second educational commission was set up in 1964, whose terms of reference were directed towards the welfare of students. The following years saw 'more commotion than anything else on both the educational as well as political scene'. A third commission was set up in 1969 'to review the educational policies with a view to identifying their shortcomings and putting forward a set of recom-

mendations to overcome them'. The Central Ministry of Education pointed out the directions in which change was required and proposed an educational plan extending to 1980. The Fourth National Five-year Plan (1970-75) included some aspects of these proposals in the sector of education and manpower planning. The new socio-economic and political patterns that emerged in the subcontinent towards the end of 1971 also called for a fresh look to be given to educational policies. A new policy was announced in March 1972, which replaced the university ordinance with a new legislation and provided for the establishment of the University Grants Commission, the Academy for Teacher Training and the National Curriculum Bureau. The government has also decided to constitute Educational Councils at the national, provincial, district and institutional levels and to establish a people's university.

Research in Pakistan

As mentioned before, the importance of research in the national economic development has been understood very well and was reflected in the establishment of the National Science Council in 1959, which had been preceded by the earlier establishment of four separate councils. These are the Food and Agricultural Research Council, Pakistan Council of Scientific and Industrial Research, Medical Research Council and Atomic Energy Council. The National Science Council was set up to co-ordinate the research activities all over the country. In 1965/66 50 per cent of the research expenditure was spent by the research councils, 45 per cent by the government departmental laboratories and only 5 per cent by the ten universities of the country.

The national expenditure on research and development as a percentage of GNP fell from 0.17 per cent in 1963 to 0.13 per cent in 1966. However, it appears that scientific research and development has increased its share from 3.4 per cent in 1969/70 to 8.2 per cent in 1971/72 of the total expenditure on annual development programmes.

Three reasons are given for the difficulties in planning research and development at the national level. These are:

- (a) Small absolute size of science in relation to the economy's technological needs and to the country's cultural sophistication;
- (b) Neglected development of research efforts in certain important spheres such as agriculture, energy, transport and communication sectors;
- (c) Lack of contact with international science.

3. Organization and planning of research at the university

The West Pakistan University of Engineering and Technology started with the objective of generating new knowledge through research. But the scarcity of qualified teachers stood in the way of promoting the research effort. Forty per cent of teachers' time was devoted to personal study, seminars, research guidance and

research in all departments except architecture and town planning. In architecture it was 37 per cent. The Committee for Advanced Studies and Research was subsequently formed in the University with a Director of Research as its secretary. The Directorate of Research is responsible for scrutiny of the projects received from individual professors. Emphasis, naturally, was laid on the projects of more immediate use in the development of industrial and other practical applications, on applied research rather than 'basic' or development work. This emphasis was also agreed by the university, but again lack of staff and an increase in undergraduate enrolment was a barrier in the way. Although 34 per cent of total staff had Ph.D. degrees, it appears that they were overburdened with teaching work.

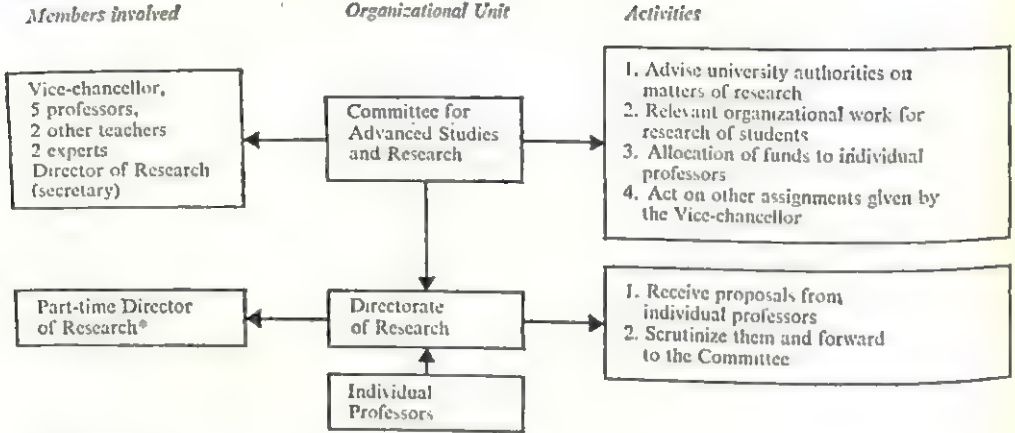
Organization and operation of research activities

For all the priority being given to applied or 'adaptive' type research, since 1963 programmes have been formulated without due regard to feasibility in respect of teachers' time, predictable uncertainties about the socio-economic situation of the country and the technical capability of the system. This impeded the implementation of the programmes or projects, as is revealed by the fact that the funds allocated for the year 1963/64 were not used. The situation, however, improved during the following years. Sixty-five per cent of the allocation for research was actually utilized in 1970. This represented only 2.9 per cent of the total budget. The reason for so little emphasis on research is also attributed to the considerable wastage of effort as a result of the conflict of roles between teaching departments and the Committee for Advanced Studies. It was only in 1970 that the role of the Committee for Advanced Studies and Research was defined to include programming, co-ordination and evaluation of research. Sponsored research was given priority for the first time in 1969. Teaching departments were supposed to organize research committees and the submission of quarterly progress reports on projects was made compulsory. All these measures were approved only in April 1971, when the duties of the Director of Research were also defined for the first time.

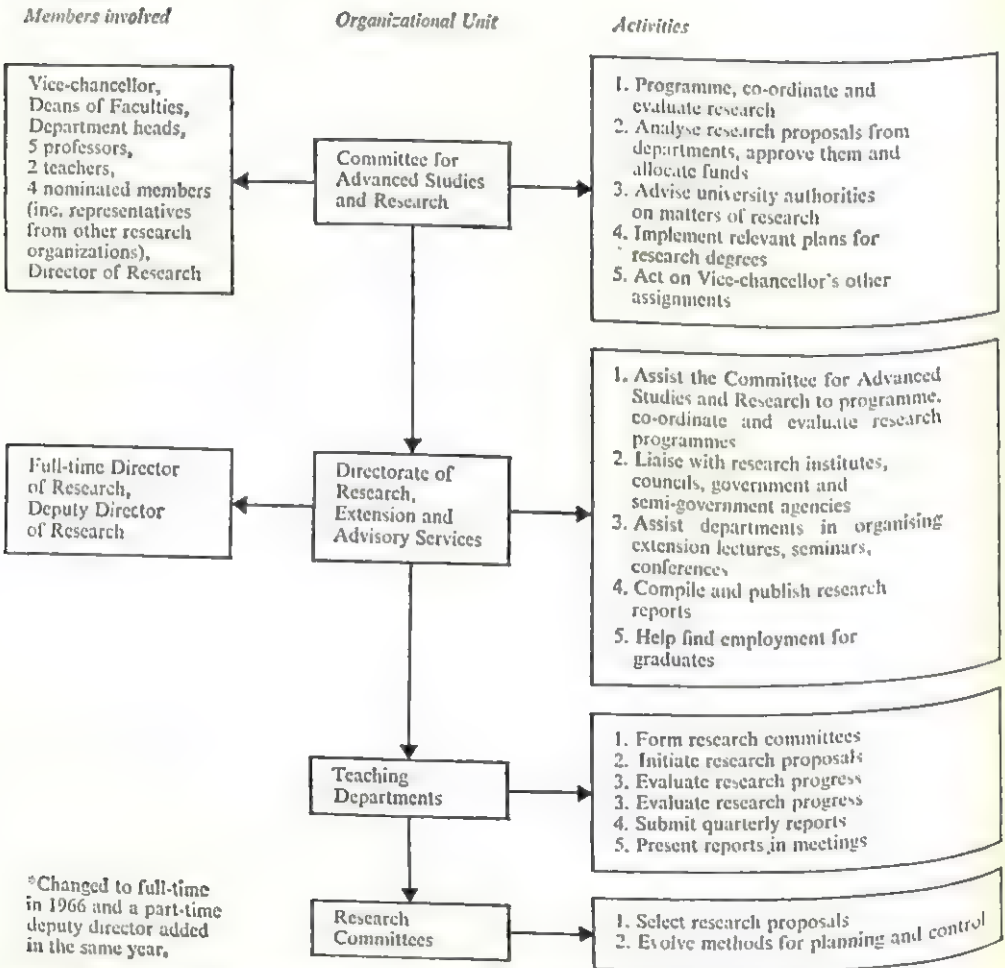
The historical development of the organization and planning of research is given in Figure 1 (overleaf).

It would appear from the chart that, as from 1970, there was going to be a good period of research planning in the university. The period 1961/69 was a period of very little research activity. Actually, no research project was initiated before 1964, although the university made a budget provision of as much as 4 per cent of the total budget provision for the year 1963/64. This was certainly an unrealistically ambitious provision since, in the University Project Plan, there was no indication of the functions of the research section of the university. The university, it seems, was established in a fairly hurried manner and without going deeply enough into the details of the planning needed. However, it was very keen to promote research and development activities, as is evident from the financial provision for research activities.

1961-69



1970 onwards



*Changed to full-time
in 1966 and a part-time
deputy director added
in the same year,

FIGURE 1. Research at West Pakistan University of Engineering and Technology

Role of post-graduate courses in research

The role of post-graduate courses in the promotion of research efforts also met with failure during the period 1960-65. The situation did not improve even in 1970 when the actual enrolment was only 25 per cent of the target. Also, most of these students are evening students with little time for research. 'Poor planning, ambitious targets, irrational utilization of the available funds, poor progress on building and other physical facilities and continued growth in undergraduate enrolment' are given as the main reasons for the failure of this programme of courses.

Evaluation of research activities

Although it was intended that the teaching departments should evaluate research activities and the Directorate of Research, Extension and Advisory Services should evaluate research programmes, very little evaluation was done in reality. No methods for interim evaluation were evolved before 1970. Out of 110 research projects that had been initiated at the university since 1964, only two projects had been completed. The results of the first or second phases of the work have been reported for eight of them, but the work still continues. Thirty-four other projects are continuing, but no results have yet been reported. The remaining sixty-six projects have been abandoned or presumed to be so, because the research worker has either gone abroad or has resigned or retired. Only three of the projects were abandoned for financial reasons.

The reasons for such a large number of projects being abandoned are:

- (a) Over-enthusiasm for research and development activity in the university during the initial years reflected in the approval of whatever research projects were submitted by the staff without the schemes being examined in detail;
- (b) About 32 per cent of the projects were abandoned because the research workers were sent abroad on the university's Overseas Training Programme, some of them twice during the last few years;
- (c) Heavy teaching assignments at the undergraduate level. The university was indeed emphasizing undergraduate teaching;
- (d) Non-availability of funds and specialized equipment. This was not a very important factor and only three out of 110 projects were abandoned for this reason;
- (e) Lack of motivation and incentive on the part of the research worker; and
- (f) Lack of administrative and managerial experience for the research and development activity in the university. Responsibilities were not well defined. Although according to the university ordinance, the head of a department was responsible for the organization of research in his own department and the Dean of the Faculty for the co-ordination of research in the various departments, the Directorate of Research and the Committee for Advance Studies and Research had assumed these responsibilities on their own. The Academic Council did

not give any attention to research activity. Research funds were so far considered as contingent expenses only;

- (g) Lack of experience by the foreign-trained staff in carrying out independent research work suited to Pakistan's needs;
- (h) Lack of team work; and
- (i) Lack of premium on research work.

The abandonment of so many projects and the suspension of work in others, however, need not necessarily have meant wasted effort or wasted funds. In many cases, where the projects were abandoned or work discontinued before achieving adequate results, the equipment that had been purchased and the experimental rigs which were constructed locally for the projects provided desperately needed laboratory equipment both for undergraduate and post-graduate work. This result alone more than justified the meagre amount of Rs. 357,595 spent on all the research projects during the period from 1964 to 1971.¹ This amount represents only 0.88 per cent of the total university recurrent expenditure (non-developmental) for the same period.

The general policy so far had been to encourage everyone who came up with a research proposal to participate in the research and development activity. This practice can be said to have its own merits and demerits. In the formative years of the university, this policy kept research and development alive and also added to some individuals' experience of doing independent research work. It also helped the university planners and administrators to acquire some experience in the planning and management of research and if this experience can be properly communicated, it can be of immense value in formulating better methods for the future administration and control of research in the university.

4. Conclusion and suggestions for improvement

The seventies may see a better situation for research activities at the West Pakistan University of Engineering and Technology, but this would need the following steps to be pursued:

- (a) Before considering any project for approval, information in sufficient detail should be sought from the research worker on the following points:
 - (i) Title of the scheme;
 - (ii) Brief description of the proposed work;
 - (iii) Some details of work already done on the subject, including the main results and the bibliography;
 - (iv) In case the work proposed has already been conducted somewhere else, which aspect of the investigation is it now proposed to pursue?
 - (v) Has the author already done any work in this field and is this published?
 - (vi) If this is a new work, what will be its usefulness to the country, university, department, industry or any other organization?

1. Exchange rate, July 1972, U.S.\$1 = Rs.11.00.

- (vii) Will the study require setting up of new apparatus? If so, give list of main items of the equipment and cost;
- (viii) Will the equipment be available locally? If it has to be imported, what is the position about foreign exchange and the period during which it can be arranged?
- (ix) If the work is to take more than one academic year, the study must be phased as under:

<i>Cost of</i>	<i>1st year</i>	<i>2nd year</i>	<i>3rd year</i>	<i>Total</i>
Equipment
Personnel needed in addition to the proposer
Consumable and maintenance cost
Total

(x) Has the proposed subject of investigation been discussed previously in a meeting of the staff and have their suggestions been incorporated?

(xi) Is there any Pakistani who has some background of the work being proposed who can be invited to contribute to the proposed study?

Lastly, the mechanism should be well defined and well publicized and should be planned for a sufficient length of time to permit its evaluation.

- (b) The provision of funds for research and development should be included in the development budget of the university instead of considering it as a part of the 'contingencies' of the non-development or annual recurrent budget. The former has the advantage of giving a longer term and also it avoids funds lapsing every year if not utilized within the year. Developmental grants can also be carried over and utilized during the subsequent years of the planned period and can be switched to those projects which have shown greater promise. This will also make it possible for the controlling authorities to assure the full financing of the project even if the project is spread over a period of more than one year.
- (c) The Head of the Department concerned should be vested with full executive and administrative authority for the conduct of the research and development activity in his own department and he should have all powers for the utilization of funds up to the entire limit of allocation. He should also be the drawing and disbursing officer of the entire budget allocations for his own department and be made responsible for interim evaluation of the project.
- (d) The procedures for the purchase of equipment and literature and for the control of the running costs of the project must be thoroughly revised. The faculty research worker should be given the maximum leeway in meeting the expenditure within the sanctioned limits. The appointment of research assistants and any other staff should be entirely the responsibility of the faculty research worker within the funds allocated for this purpose.
- (e) Sending teachers abroad has to be phased in accordance with the priority of the university's objectives. In any case, the university's teacher-training programme will soon be reaching its completion and the staff position will improve considerably.

- (f) Efforts have to be made and contacts developed with industry and other organizations to procure funds for research and development out of the funds allocated to sectors such as Agriculture (Agricultural Engineering and Mechanization), Industry, Fuel and Minerals, Water, Power, Transport and Communication, Physical Planning and Housing and Works Programmes.
- (g) In addition to departmental interim evaluation of research projects, provision for objective analysis has to be made of the achievements of the university in the light of the goals set forth for it by the government. This would identify inconsistencies and help to control the future course of action. A recent financial analysis of the university brought out the fact that no allocations have been shown separately for research as a major item of expenditure. This pattern gives the impression that, in reality, research is not considered a major activity of the university, although the objectives of the university state the contrary.
- (h) The Directorate of Research, Extension and Advisory Services should be replaced by an Institute of Research and Development, to act as a nucleus of research and development activity in the university, especially in the field of applied and developmental research. Each teaching department, however, will independently organize its own research activity. The Committee however, will independently organize its own research activity. The Committee for Advanced Studies and Research might be renamed as 'Research Planning and Review Committee' (RPRC). This committee could be entrusted with the following functions in addition to those already entrusted to the existing Committee for Advanced Studies and Research:
 - (i) Identification of needs and opportunities for scientific projects;
 - (ii) Estimation of costs and benefits of proposed scientific projects;
 - (iii) Comparison of competing projects;
 - (iv) Mobilization of resources;
 - (v) Interim evaluation;
 - (vi) Terminal evaluation.

This committee should also maintain an up-to-date list of a sufficient number of national problems in each sector of the economy relevant to the university's effort. Lists of short-term and long-term projects should be separately maintained. RPRC should also set up a research and development liaison cell which could keep in constant touch with the research councils and other research establishments and with industry so as to maintain a two-way flow of information of research and development activity.

- (j) Workshop, laboratory and library facilities should be improved. Teamwork should be encouraged and it should be made obligatory for each research worker to have associate workers, especially in the teaching departments. It will improve the continuity in research projects. An incentive mechanism has to be developed for research workers.

Planning of research in West Pakistan University of Engineering and Technology has met so far with enormous difficulties—difficulties which might confront any other university in a developing country. The experience gained by this university could help others to take precautionary measures beforehand.

B. Research work at the University of Tokyo

by T. Mukaibo,
*Professor in the Department of Industrial Chemistry,
University of Tokyo*

1. The University of Tokyo: a case study

The University of Tokyo is the biggest in the country according to the number of teaching staff employed and it also has the largest number of students among the national universities, but many Japanese private universities are larger in student numbers. Its students come from all parts of the country and the university is considered to be important both from the point of view of teaching and of research. Table 1 shows that the total number of undergraduates has not risen greatly since 1965, partly due to the disturbances experienced at the university, but there has been a significant increase in the number of graduate students.

TABLE 1. Growth in number of students

	Under- graduates	Master's course	Doctor's course	Research students ¹	Total of graduate students ²
1965	10 860	1 750	1 469	—	3 219
1970	11 892	2 010	1 745	161	3 916
1971	11 503	2 170	1 947	179	4 296

1. Students engaged in research only, and not in regular graduate courses, are not entitled to receive degrees. The majority of research students are from other Asian countries, whereas, at the graduate level, there are also students who have been sent by business enterprises.

2. One-third of the total graduate students are engaged in research in the research institutes, teaching being given in the respective colleges.

It can also be seen from Table 2 on growth of university staff that the greatest increases in number of posts are to be found at the Research Assistant level.

TABLE 2. Growth in teaching staff

		Professor	Associate professor	Lecturer	Research associate/assistant	Total
1965	Faculty	563	580	63	889	2 095
	Research Institutes	201	207	42	543	993
	Hospital	—	14	76	279	369
	TOTAL	764	801	181	1 711	3 457
1970	Faculty	633	655	58	979	2 325
	Research Institutes	232	241	43	578	1 094
	Hospital	1	17	86	289	393
	TOTAL	866	913	187	1 846	3 812

A detailed breakdown of these staff and of students by level and field during 1971 is given in Tables 3-8. Research staff are rather concentrated in such fields as medicine, engineering, science and agriculture.

As regards the organization of research, this is carried out in both the faculties and research institutes, but the institutes are independent of the faculties and each faculty has some research facilities, including farms, laboratories or hospitals. The graduate courses are given by the faculties in each of the different fields except for Sociology which is organized as a co-operative effort by the relevant faculties. The budget for research and teaching is shared between the graduate and undergraduate levels.

Some students on graduate courses are accepted into the research institutes—probably one-third to one-quarter of the total. The present system of graduate courses was established in 1952—before this there were no Master's degree courses, only a Ph.D. awarded on presentation of a thesis, which did not necessarily take place at the completion of a university course. The latter still remains for those engaged in research outside the university.

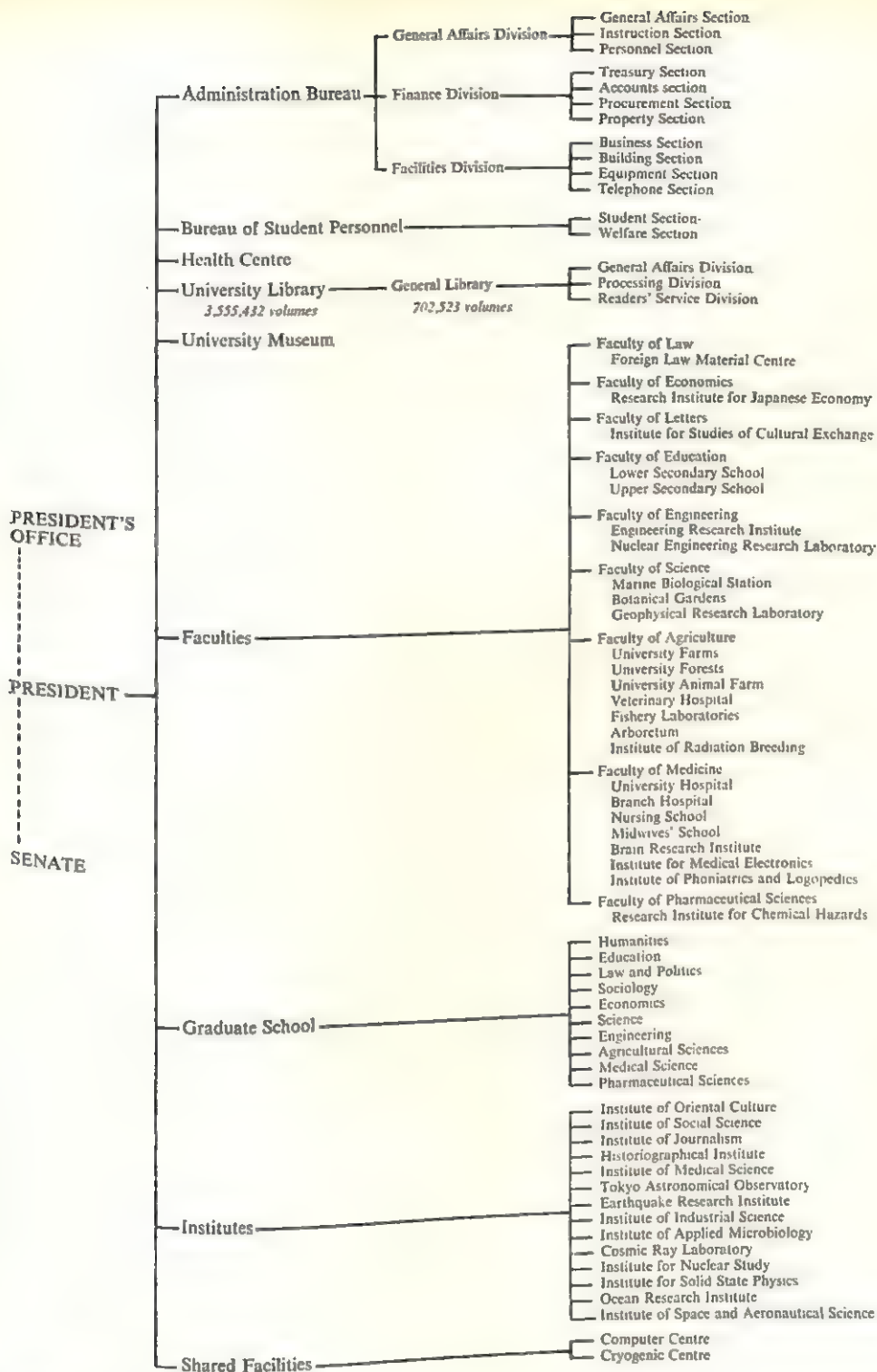


FIGURE 1. Organization chart. 1970

TABLE 3. Teaching and administrative staff, 1971

	President	Professors	Associate professors	Lecturers	Instructors, research associates & assistants	Instructors (Secondary schools)	Others	Total
<i>President</i>	1							1
<i>Faculties</i>								
Law		38	11	—	31	—	71	151
Medicine		50(1) ¹	49	17	79	—	147	342(1)
Engineering		135	129	37	319	—	513	1 133
Letters		39	33	1	39	—	40	152
Science		71	59	17	155	—	225	527
Agriculture		59	59	3	137	—	219	477
Economics		18	22	—	8	—	49	97
College of General Education		114(1)	149	10	96	—	169	538(1)
Education		14	6(1)	1	10	35	44	110(1)
Pharmaceutical Sciences		14(1)	13	1	34	—	42	104(1)
<i>Institutes</i>								
Medical Science		16(2)	15	5	68	—	261	365(2)
Astronomical Observatory		10	13	16	55	—	131	225
Earthquake Research		15(1)	10	5	47	—	105	182(1)
Oriental Culture		9	5	4	14	—	34	66
Social Science		16	12	—	10	—	33	71
Journalism		5	6	—	6	—	15	32
Industrial Science		43(1)	41	11	83	—	306	484(1)
Historiographical		10	10	—	34	—	40	94
Applied Microbiology		11(1)	11	1	26	—	52	101(1)
Cosmic Ray Laboratory		—	—	—	—	—	13	13
Nuclear Study		7(3)	21	—	44	—	120	192(3)
Solid State Physics		19(4)	19	—	40	—	110	188(4)
Oceanography		11	10	2	24	—	152	199
Space and Aeronautics		27(1)	26	8	61	—	235	357(1)

<i>Hospital</i>	1	4	51	273	—	1 089	1 418	
<i>Branch Hospital</i>	—	12	25	51	—	288	376	
<i>Forests</i>	3	3	2	26	—	215	249	
<i>General Library</i>	—	—	—	—	—	95	95	
<i>Museum</i>	—	1	—	6	—	6	13	
<i>Computer Centre</i>	—	1	—	4	—	44	49	
<i>Health Centre</i>	—	2	6	6	—	3	17	
<i>Cryogenic Centre</i>	—	1	—	—	—	6	7	
<i>Radio-isotope Centre</i>	—	—	—	—	—	1	1	
<i>General Affairs Division</i>	—	—	—	—	—	104	104	
<i>Finance Division</i>	—	—	1	—	—	160	161	
<i>Facilities Division</i>	—	—	—	—	—	137	137	
<i>Bureau of Student Personnel</i>	—	—	—	4	—	126	130	
TOTAL	1	755(16)	753(1)	224	1 790	35	5 400	8 958(17)

1. Numbers in brackets refer to the national public service personnel who are associated primarily with some other national university or government office.

NOTE Other part-time teaching staff members are not included in this table.

TABLE 4. Enrolment of undergraduates, 1970

TABLE V

Subject	Regular students				Research students				Auditors		Sub-totals			
	All students		Foreigners		All students		Foreigners				All students		Foreigners	
	Total	Female	Total	Female	Total	Female	Total	Female	Total	Female	Total	Female		
Law	1 636	28	3	—	—	—	—	—	6	—	1 642	28	3	—
Medicine	580	36	12	—	199	71	23	2	—	—	779	107	35	2
Engineering	1 904	6	7	—	66	4	2	—	51	1	2 021	11	9	—
Letters	931	121	1	—	—	—	—	—	—	—	931	121	1	—
Science	552	40	2	—	71	16	—	—	14	5	637	61	2	—
Agriculture	498	14	2	—	67	12	3	—	—	—	565	26	5	—
Economics	805	8	1	—	—	—	—	—	8	—	813	8	1	—
College of General Education	4 151	183	16	2	27	10	4	1	—	—	4 178	193	20	3
Education	139	18	—	—	26	8	—	—	—	—	165	26	—	—
Pharmaceutical Science	142	10	—	—	18	8	1	—	1	1	161	19	1	—
TOTAL	11 338	464	44	2	474	129	33	3	80	7	11 892	600	77	5

TABLE 5. Enrolment of postgraduates, 1970

Subject	Regular students										Sub-totals			
	Master's programme				Doctor's programme				Research students					
	All students		Foreigners		All students		Foreigners							
	Total	Female	Total	Female	Total	Female	Total	Female						
	Total	Female	Total	Female	Total	Female	Total	Female						
Humanities	263	71	8	3	216	49	17	4	32	11	511	131	57	18
Education	87	20	—	—	84	24	5	—	11	4	182	48	16	4
Law and politics	43	3	6	1	51	2	16	—	17	1	111	6	39	2
Sociology	46	9	3	—	58	15	8	1	17	2	121	26	28	3
Economics	70	4	2	—	71	4	3	—	8	—	149	8	13	—
Science	432	23	1	—	450	33	12	1	12	2	894	58	25	3
Engineering	765	3	11	—	453	7	39	3	28	2	1 246	12	78	5
Agricultural Science	187	7	15	—	200	10	38	2	24	1	411	18	77	3
Medical Science	30	11	—	—	88	19	16	1	8	—	126	30	24	1
Pharmaceutical Science	87	5	6	1	74	5	8	1	4	1	165	11	18	3
TOTAL	2 010	156	52	5	1 745	168	162	13	161	24	3 916	348	375	42

TABLE 6. Total number of students, 1970

	All students		Foreigners	
	Total	Female	Total	Female
Regular students	15 093	788	258	20
Research students	635	153	194	27
Auditors	80	7	—	—
GRAND TOTAL	15 808	948	452	47

TABLE 7. Total number holding 'gakushi' (Bachelor) degree, 1971

Subject	Under old system (1877-1952)	Under new system (1953-1970)
Law	29 206	10 617
Medicine	7 258	1 395
Engineering	18 393	9 905
Letters	11 126	4 411
Science	4 626	2 529
Agriculture	8 292	3 265
Economics	11 201	5 142
Liberal Arts	—	1 500
Education	—	1 020
Pharmaceutical Science	1 324	803
Health Care and Nursing	—	278
Health Sciences	—	63
Others	22	—
TOTAL	91 448	40 928

TABLE 8. Total number holding 'shushi' (Master) and 'hakushi' (Doctor) degrees, 1971

Subject	Doctor under old system (1877-1952)	Master under new system (1953-70)	Doctor under new system (1953-70)	Doctor <i>Ronbun-</i> <i>hakushi</i>
Letters	299	1 465	14	33
Education	—	400	13	8
Law	157	209	66	9
Sociology	—	94	9	5
International Relations	—	104	—	—
Economics	63	330	18	38
Science	1 401	1 888	597	378
Engineering	1 912	2 765	608	551
Agriculture	1 110	921	324	394
Medicine	5 674	—	589	708
Health Science	—	34	2	—
Pharmaceutical Science	568	400	154	207
TOTAL	11 184	8 610	2 394	2 331

M. Sc., M. A. and Ph. D. degrees are awarded in eleven academic fields—humanities, education, law, international relations, economics, sociology, science, engineering, agriculture, pharmacology and medicine, and the growth of the university's work at this level is shown by the fact that, whereas 729 Master's degrees and 474 Ph. Ds were awarded in 1965, 945 Masters and 671 Ph. Ds were awarded in 1970—science and engineering were particularly strong fields.

The structure of the University of Tokyo is shown in Figure 1 (p. 365). It can be seen that the highest decision-making body is the University Senate which consists of the deans of faculties, two members from each of the faculties and the directors of the research institutes. The President of the university takes the chair in these meetings.

2. Higher education in Japan and its relation to the economic and social structure of the country

The economy and education system

Japan has a mixed economy: there are government monopolies of alcohol, salt and tobacco, and the railways, communications, research and development of nuclear energy for peaceful purposes, as well as other organizations important from the national point of view, are mainly supported by the government. Overall economic and manpower planning is in the hands of the National Economic Planning Agency, the head of which is a Minister and member of the Cabinet.

The GNP in recent years has risen rapidly as shown in Table 9. Government

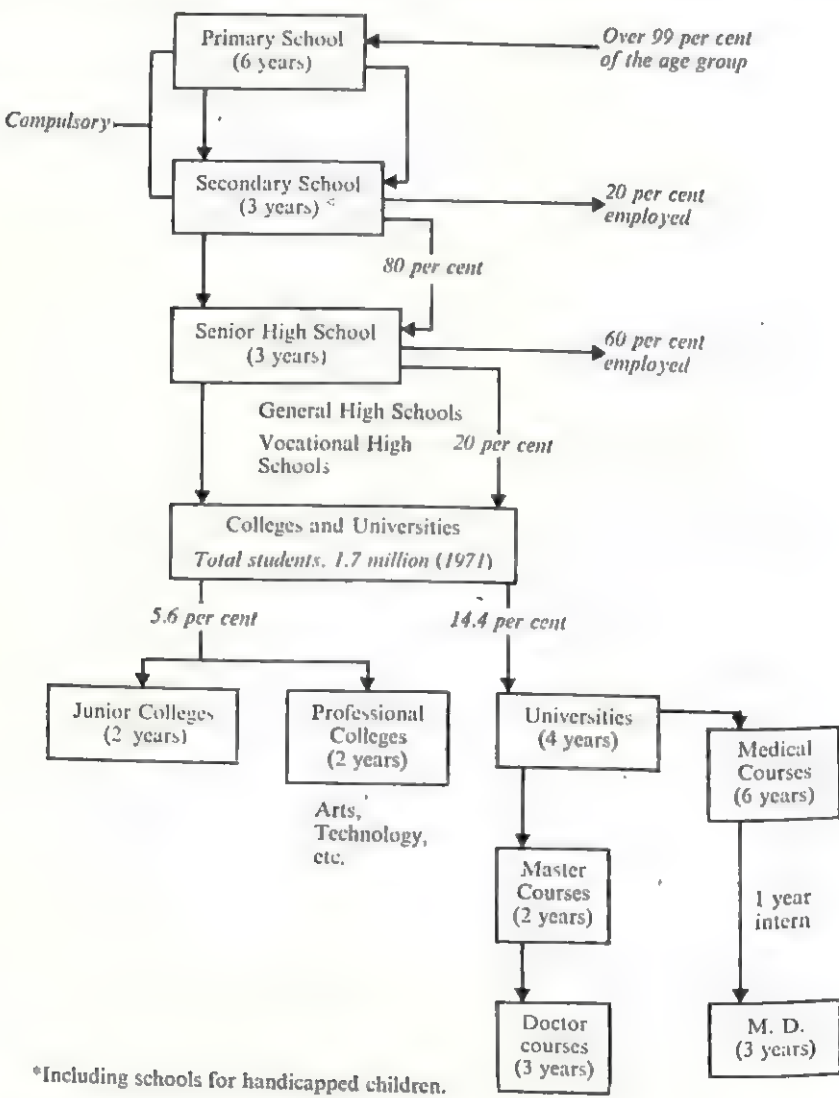
TABLE 9. Evolution of GNP and GNP per capita over recent years

	1965	1969	1970
GNP ($\times 10^{12}$ yen)	32.7	62.44	72.72
Per capita ($\times 10^4$ yen)	33.4	62.0	72.0

1. Exchange rate, July 1972, U.S. \$1 = 304 yen.

expenditure in 1968 on primary and secondary education was 2.9 per cent of the GNP and that for higher education was 0.4 per cent.

Figure 2 illustrates the Japanese educational system. About 20 per cent of young



*Including schools for handicapped children.

FIGURE 2. The Japanese school system

people of university age go on to institutions of higher education, of whom 28 per cent attend junior and professional colleges and 72 per cent attend universities. Table 10 shows that two-thirds of them are in the private universities and colleges—this sector increasing much more rapidly than the public sector.

TABLE 10. Distribution of students and universities in public and private sectors

	Universities			Colleges				
	National	Local	Public	Private	National	Local	Public	Private
No. of schools (1970)	75	33		274	22	43		414
No. of students								
1965	257 702			651 400	21 663			125 900
1966	277 018			734 493	23 059			171 938
1967	296 234			827 722	24 218			210 530
1968	315 219			919 309	25 202			230 060
1969	326 784			988 620	26 042			237 320
1970	359 698			1 046 823	26 022			237 197
	309 587 .. 50 111			—	9 886	16 136		—

SOURCES Ministry of Education

In 1968, out of a total enrolment of 1,475,191, over half the students in institutes of higher education were in the humanities and social science fields (757, 743), while medicine (47, 587) and science/engineering (365,641) each accounted for under a quarter.

The national universities,

The general framework for national university education has been laid down by the Ministry of Education and is set out in the 'Standards for the establishment of Universities'. However, the management of the universities is carried out by the universities themselves who are largely autonomous—their autonomy being limited only by the government through the budgets.

There is, however, an independent organization called the Association for the Establishment of University Standards and it consists of representatives from each of the public universities. This Association examines current standards and recommends amendments to the Ministry of Education from time to time. The government is not obliged to adopt these recommendations but generally they are taken into account when improving standards.

The private universities,

The private universities are free to develop their own systems of education but they are required to meet governmental standards as mentioned above when new

schools at undergraduate or graduate level are established, in order that they may be authorized to award officially recognized degrees.

Private colleges and universities cater for more than two-thirds of the total number of students.

The official government view is that no priority should be given to any specific field from the standpoint of using the educational system as a tool for development. However, in actual fact during the last ten years stress has been laid on expansion of the natural sciences, and also particularly engineering, and on improving the facilities of the national universities. This is clearly due to the need to supply manpower for development of the country, but has been criticized by certain cultural groups as being harmful to the balanced development of society. Recently, expansion of the natural sciences has levelled off and the direction of government stress is gradually changing towards the balancing of all academic fields but with some special consideration being given to new problems such as environmental pollution, urban problems and the instability of young people.

Research in Japan

Tables 11, 12 and 13 give some statistics on the present state of research in Japan. On a national basis industry spends more than twice as much on research as is allocated to the universities by the government, and, within the research institutes,

TABLE 11. Research expenditures of various organizations (10⁷ yen)

	1965	1969	1970	1965-70 Annual increase (%)
Research Institutions	7 260	13 707	16 636	18.0
<i>By field</i>				
Humanities & Social Science	417	964	1 174	23.0
Natural Science & Engineering	6 843	12 743	15 462	17.7
<i>By source</i>				
Governmental	3 110	4 735	5 456	11.9
Local-governmental	2 488	4 534	5 748	18.2
Private	930	1 784	1 884	15.2
Public corporations ¹	732	2 654	3 548	37.1
Industries	25 236	62 835	82 327	26.7
Universities	18 364	29 923	36 588	14.8
TOTAL	50 859	106 465	135 551	

1. Rapid increase of research expenditure by 'public corporations' is due to the fact that research and development on nuclear energy are mainly performed in institutions, almost totally supported by the government, which have been included in 'public corporations'.

the ratio of spending on natural science and engineering as opposed to the humanities and social science is approximately 14:1.

Table 11 shows increases in research expenditure on the natural sciences and engineering alone by both government and industry during the period 1965-70. The government, whose contribution has always been less than half that of industry, has not increased its share proportionately. This would seem to imply that the universities are doing relatively less research. This can be seen from Table 13—while industry increased its numbers of researchers from 186,000 to 283,000 during the period, the universities and research institutes have a much lower annual increase, the total rising from 211,000 to 285,000.

The organizational structure of governmental research bodies is set out in Figure 3 (pages 376-378).

TABLE 12. Research expenditure for natural science and engineering

Year	A. Research expenditure (10 ⁹ yen)			B Gross national product (10 ¹² yen)	Percentage A/B
	Total	Government	Industry		
1965	508.6	162.4	345.6	32.7	1.55
1966	576.6	194.0	381.9	38.1	1.51
1967	702.5	224.2	477.5	44.8	1.55
1968	877.5	262.8	613.9	52.8	1.66
1969	1 064.7	299.7	763.8	62.4	1.70
1970	1 355.5	370.1	984.7	72.7	1.86

NOTES

1. In this case 'research' means research and development.
2. In 1960 the Council of Science and Technology recommended the government to increase the proportion A/B to approximately 2.00 per cent. The figure is being almost attained ten years later.
3. It has been criticized that the ratio of the government expenditure is too small and always less than half of that of industries. However, the tendency is still getting worse, partly due to the active interest of industries in research.
4. In Table 11 the amounts spent by various organizations are shown, whereas Table 12 shows the amounts defrayed by the government and industries.

TABLE 13. Employees of research organizations

	1965	1970	1971	1965-71 Annual increase (%)
Total employees	397 400	527 400	568 200	6.1
Qualified researchers	195 000	286 400	310 900	8.1
Industries	186 200	251 500	282 800	7.2
Research institutions ^{1,2}	55 000	61 000	61 400	1.9
Universities	156 200	214 900	224 000	6.2

1. Most of the institutions are governmental.

2. The low rate of growth in research institutions is imposed by the law which prohibits the increase of the total number of the government employees. Teaching staffs are excluded from the general regulation.

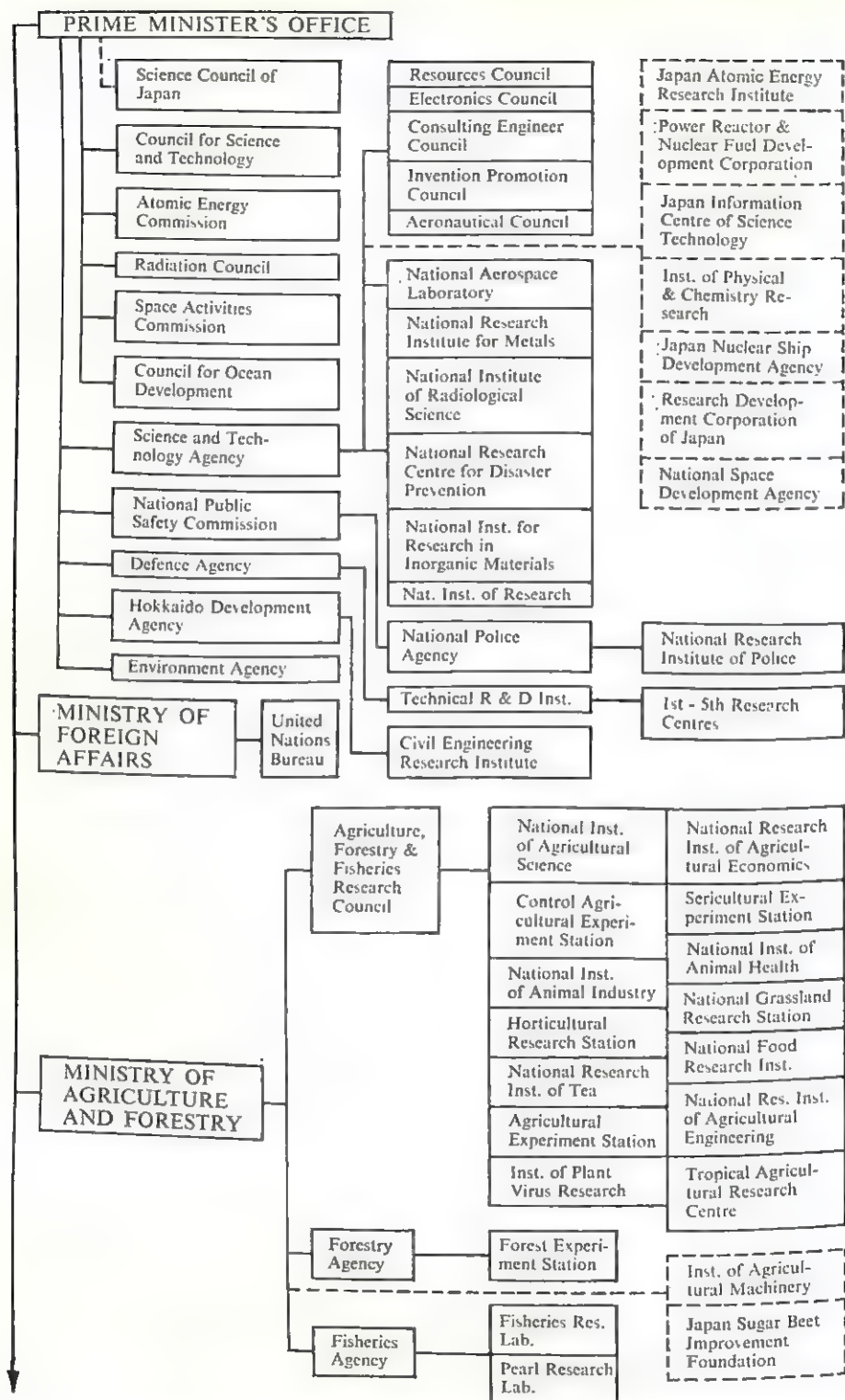


FIGURE 3. Organization of the government in relation to research administration and also government activities in research

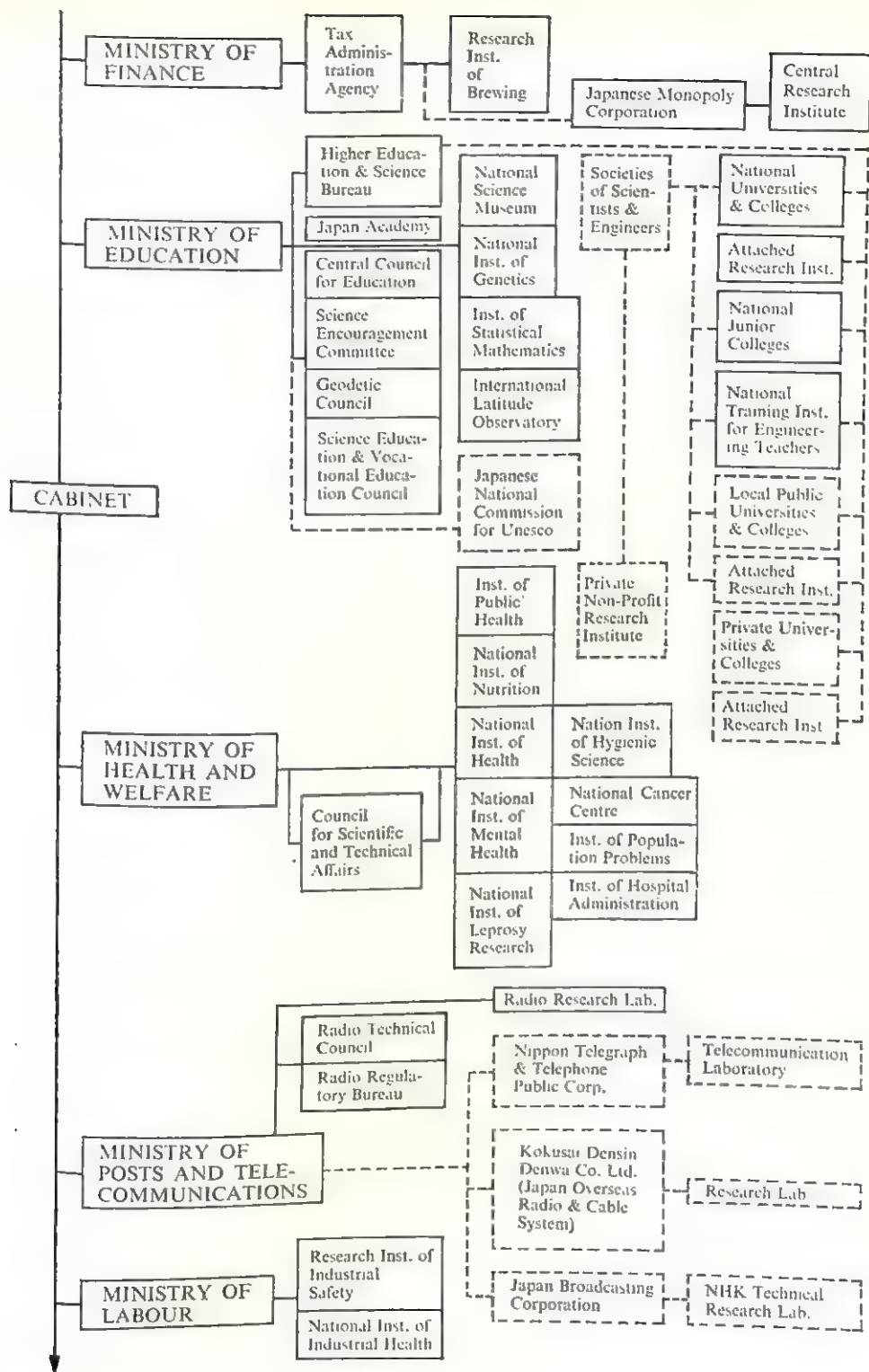


FIGURE 3. (continued)

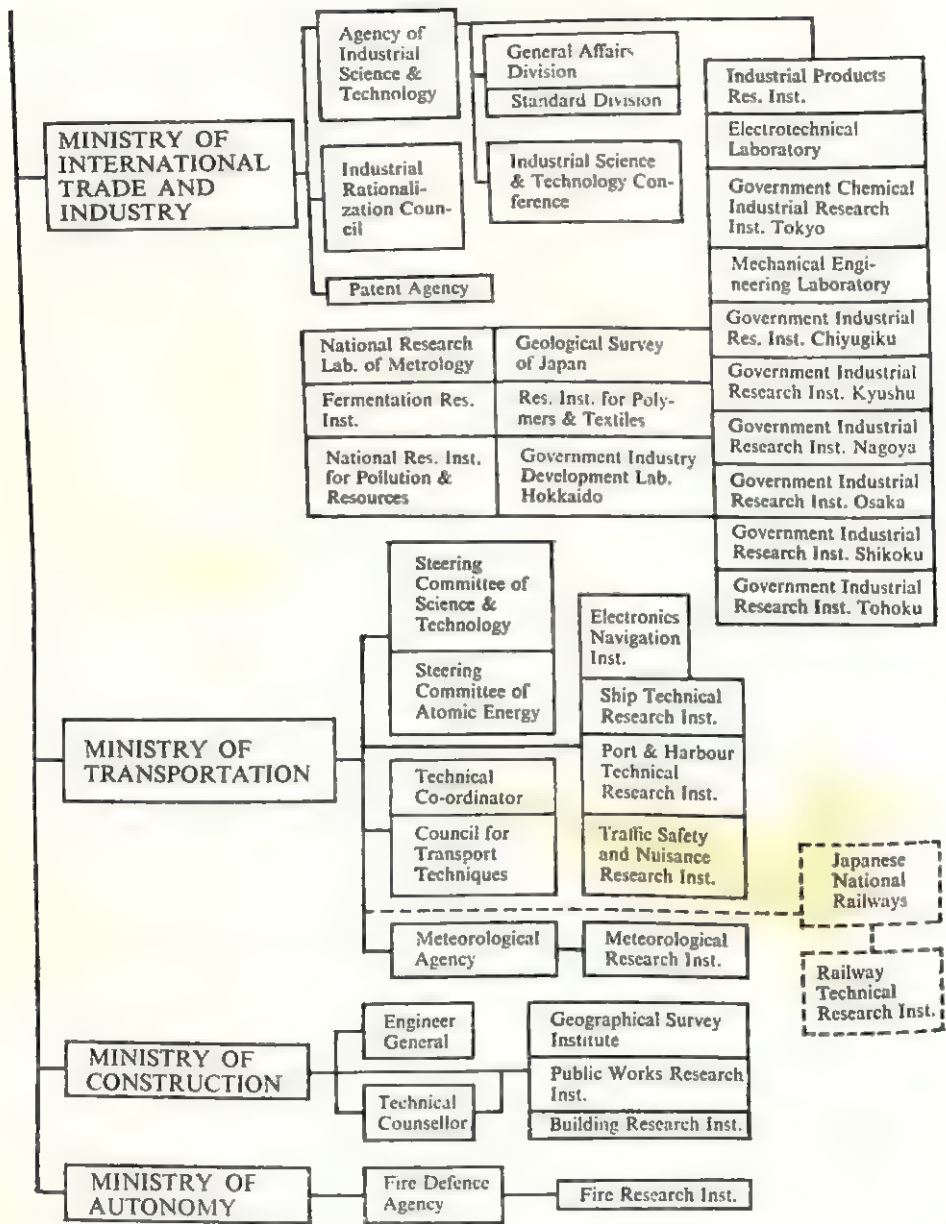


FIGURE 3. (continued)

3. Organization of research at the university

Organization and operation of research activities

It is the university's view that as a whole research and teaching activities should be given the same weight, but obviously this differs between the various branches of study and between staff members. For example, in research institutes, priority is given to research and their staff are not obliged to teach, although the majority do participate in graduate teaching. On the other hand, for teachers of junior courses, the stress is on teaching, this includes the budget and supporting staff, although all of them are actually engaged in some research or other. However, complaints have been received from the junior course staff about their research conditions and improvements are now under discussion as part of the university reforms.

No overriding importance is attached to basic as opposed to applied research and the emphasis again is different in different faculties; for example, there is more applied research in the Engineering School. It is true that research which is more applied research in the Engineering School. It is true that research which is more important from the point of view of socio-economic needs more easily attracts support from the government and industry—these include engineering, modern economics, biological and medical sciences, but there is the feeling in the university that the university should exist for the future benefit of society and not be oriented towards present social and economic needs. This is the reason why efforts are being made to obtain a balanced development in all fields.

Generally, individual professors and students choose their research topics themselves, and the amount of time devoted by the professors to teaching and research is also decided by themselves, though of course the Dean of the faculty supervises the activities to some extent. But the choice of topic is influenced by the sources and amount of finance available. There are special budgets, like that for the development of atomic energy for peaceful purposes, which are distributed to many institutes, including private ones. For the most part, universities depend on the budget controlled by the Ministry of Education and are limited by the amount allocated to them.

There is no overall co-ordinating body for research in the university, but there are committees to discuss certain types of co-operative research. Large projects are not usually organized in the university colleges, but in the institutes, for instance, research into nuclear physics using big particle accelerators is carried out in the Institute of Nuclear Research. Another example is the project on space research in the Institute of Space and Aeronautical Science. These institutes operate almost independently of the university. Usually they are set up on the initiative of several capable professors who have a common interest in a specific field. They submit a proposal to the University Senate and, if it is approved, the President of the university asks the government for a grant to establish the institute. There are several new research institutes for 'common use', that is to say, the institute is supported, operated and used by scientists in Japan working in the same field, e.g. Institutes for Nuclear Research and Solid State Physics. The institutes are attached to the university but are not completely under its jurisdiction. Their

advantages and disadvantages have been the subject of much debate. Sometimes, the presence of such institutes definitely reduces the chances of faculty members obtaining expensive research equipment and funds, but at the same time, many different kinds of research equipment have been donated to the University of Tokyo expressly for the research projects of such institutes. There have been some complaints within the university about the large projects, since, although the number of people engaged on them is not large, they take up practically 50 per cent of the total available research money.

In addition to the research of institutes and individual research, there are also some interdepartmental research projects on subjects such as medical engineering, cryogenics, information sciences, etc., but again they are initiated by individual researchers as and when the need arises.

It is worth mentioning here that a huge new research institute for high energy physics is under construction in Japan. In this case, after a very long and controversial debate, it was agreed that the institute should be a national one for all researchers, including university staff, and it is independent of any university. This is a new step forward in the history of research in Japan.

There is no central office or administrative mechanism for the implementation of research projects, although some of the research institutes have their own bodies for planning. Proposals are usually discussed and ranked in each department by the professors and are again ranked in each faculty. The President makes the final ranking of all proposals by institutes and faculties according to the rules established by the Deans and Directors of Institutes. Big projects are handled separately and are usually discussed directly between the proposing institute and the Ministry of Education.

No organization has been set up to avoid duplication of research but the flow of information among researchers in similar fields is fairly good and duplication is generally avoided.

Governmental research money is distributed via two channels; the first is a definite amount distributed equally to almost all professors and the other is a special research fund for specific proposals. The procedure operating for the latter at present is as follows:

- (a) The government allocates a definite sum of money for special basic research in universities;
- (b) This money is distributed by the Minister of Education according to the recommendations of the Council for Basic Research (Japan Science Council);
- (c) The Council organizes a committee to review the research proposals. Committee members are selected from candidates suggested by the Japan Science Council which, in its turn, has received recommendations from various professional societies;
- (d) There are two committee members for each professional field, appointed on alternate years. These two persons are responsible for organizing a subcommittee to evaluate the proposals in their field. There are a variety of ways of choosing these subcommittee members, which differ by fields.
- (e) Each year 'specially emphasized research fields' are designated by the govern-

ment at the recommendation of the Japan Science Council. Some examples are research on material properties at very low temperatures, research on cancer, crystal growth, etc. There are usually several such specially emphasized research fields and each one continues to receive emphasis for about three years. The total budget for each is about U.S.\$ $(5-10) \times 10^5$.

Under this type of allocation of research money the chances of obtaining funds from the special budget are quite small, because there is always uncertainty as to the continuation of research projects.

The research money available via channel one is usually too small to allow any extensive research work. This budget is essentially distributed equally to all the university units and for a group consisting of one professor, one associate professor and two assistant professors, it probably amounts to a little more than \$ 10^4 per year. However, since there is not enough money for teaching activities, sometimes research monies are used for this purpose. But it may be said that overall these research monies do ensure that there are funds for the majority of professors to carry out research. It must be mentioned that not all professors are entitled to receive a share of this research budget; for instance, most of those in the Junior Colleges for General Education receive considerably less support.

Usually, available equipment is used by researchers in order of application. In some more important cases, such as the allocation of computer or accelerator time, a committee makes the decisions. Space for research is usually divided equally among departments.

Evaluation of research activities

There are no criteria or rules for planning or evaluating research at the University of Tokyo. It is considered that the criteria would be different for each project. Some research is being carried out within the university on methods for planning and evaluating big research projects but the results are not yet in use. It is the general view that university teachers must be able researchers in order to be good teachers, but that evaluation of efficiency of research and utilization of its results would be possible only from outside the university. It can be seen from the course of university development that social needs have been reflected in the establishment of new research institutes. However, this was not due to a stated official national or university policy, but only because such proposals found more acceptance.

Some institutes or faculties publish annual reviews of research activities and others do not. In April 1972 an Office of Information, Planning and Public Relations was established in the university and it is expected that this new office will handle the flow of both internal and external information on both teaching and research.

4. Conclusions and suggestions for improvements

Recently, there has been criticism that the university has grown too big to be administered as a single body, both as regards students and facilities. For this

reason, the President has established a university reform office which is considering the re-organization of research and the teaching system so as to improve the quality of the university's output. It is proposed to make use of modern methods of planning and management since these are areas in which the university has been underdeveloped.

The Preparatory Commission for University Reform has published its first report on the most important problems found and has put forward suggestions to the Senate:

- (a) The basic finding was that, with the present research and teaching system at the University of Tokyo, both research activities and the level and content of the curricula do not, by and large, reach international standards. Restrictions imposed by the old rigid systems of promotion and compartmentalization as well as lack of funds, shortage of laboratories and other facilities are largely responsible for the defects in research programmes. It was recognized that the university needs a radical overhaul of many aspects of its research and teaching activities.
- (b) On the whole, the university has failed to function as a university in the most intrinsic sense of the term. Evidence shows that it has been simply an aggregate of isolated colleges rather than an integral well-co-ordinated institution.
- (c) Another serious problem involves the graduate school. Since its inception in 1953, it has been continuously under-staffed and under-financed. It has no facilities of its own and its administration is almost non-existent. All its faculty members are, without exception, concurrently professors in undergraduate courses or on the staff of research institutes and their primary loyalty rests with the college or institute in which they have tenure. Given such an attitude, the graduate school cannot possibly develop into a fully-fledged high-quality institution. In addition to this, the system of post-graduate study should be modified to allow greater flexibility. Five years or more of graduate study imposes a great financial burden on the student—most have no solid income during the years most crucial to their careers and this scares away many bright students who might pursue a successful academic career. Some fields of study are faced with an increasingly serious dearth of high-calibre researchers.
- (d) The basic administrative unit of research and teaching in the university is the *koza* or chair. A *koza* most typically includes a full professor, one or two assistant professors, a lecturer and an assistant. It is by nature a hierarchical group, often with absolute authority resting in the hands of the full professor. Of course, this differs from one unit of the university to another, but most *koza* are still not completely devoid of closed, immobile and authoritarian patterns of conduct and this is one of the major obstacles blocking the rational functioning of the university in both its research and teaching programmes. Some efforts have been made in various departments to offset the restraints imposed by the *koza*. For example, some have established enough inter-*koza* co-ordination so as to reallocate funds and teaching personnel according to actual needs. The Commission feels that the system should be abolished and that a larger faculty group should function in its place.

Basic reforms suggested

A number of suggestions have been made as to how the University of Tokyo should be reformed. Among them is a plan whereby the research and teaching functions of the university would be separated to form an advanced research institute and a liberal arts college. Another popular idea is to make the university into an institution devoted exclusively to graduate education. The Commission is not favourably disposed to either approach because it feels strongly that research and teaching are mutually indispensable—they balance and supplement each other like a pair of wheels.

The Commission recommended that:

- (a) The university education system should be divided into three parts: general education; specialist education; and graduate school. Each of these would have its own administration.
- (b) All existing schools, departments and institutes should be replaced by a new professorial grouping based exclusively on fields of study. Under the present system, specialists in a given field are scattered around the whole university—economics, for example, can be found in at least three different locations, the Department of Economics, the College of General Education and the Institute of Social Sciences. The grouping by specialization would be far better suited to research, the training of researchers and specialized education, which the Commission felt should have primary emphasis.

In addition to professors and assistant professors, the new faculty group will include full-time lecturers, as well as research assistants as categorized under the present system—in fact, all those adequately qualified to perform as researchers and teachers. These staff members should be given the same rights and responsibilities as are held by professors and the assistantships would be abolished.

- (c) Three suggestions were put forward specifically for research activities:
 - (i) The present arrangements force all faculty members to divide their time between research, teaching and administration. New arrangements should be introduced to enable each staff member to give time to research for a given period during which he is free from teaching and administrative burdens. In the same way a teacher assigned to an administrative post for a fixed term should be released from other responsibilities during that time. This should raise the quality of research and administration.
 - (ii) University hospitals and certain other affiliated institutes should be separated from the university itself so that they may better fulfil their specific functions.
 - (iii) A new research centre should be established at the university to facilitate interdisciplinary projects as well as large-scale joint studies in which faculty members on their periodic research leaves will actively participate—unlike the affiliated institutes under the present system, this research centre will have no permanent professorial posts.
- (d) The present graduate-school system requires some major modifications, including abolition of the master's and doctoral courses. Depending on the field

of study, the projected graduate school would offer a two- to three-year advanced programme to those who have completed the general education course or who have the equivalent necessary qualifications. The primary aim of graduate study should be the training of researchers and scholars. After completion of graduate course requirements, the student would become eligible for a 'research associate' post, and he would then become part of the expanded faculty group. He would receive a salary from the university during his associateship and he would work on his doctoral dissertation, participate in a research project as well as assist in the teaching of general education courses. The participation of younger research scholars in both special projects and teaching programmes will help fill the gap between the faculty, on the one hand, and the undergraduate and graduate students, on the other. Research associates would be recruited from among any qualified students, not limited to the University of Tokyo, and selection should not be affected by nationality or the universities from which they graduated.

- (e) To protect academic freedom in both research and teaching, it is essential that all faculty members be guaranteed their position and related rights. On the other hand, to prevent such a guarantee from encouraging 'freedom not to produce', it would be valuable for the university to institute a system of periodic examinations to test the merits and accomplishments of its faculty. It might also consider the idea of limiting professorial appointments to a given period. These two needs—the guaranteeing of posts and periodic evaluation—are not necessarily compatible with each other. They will involve many problems and require careful study but considered from a longer and broader perspective, they should encourage inter-university mobility of teachers.

Summaries of the case studies

VI. Development of the university information system for planning and management

A. Evolving a university information system at the Catholic University of Louvain, Belgium

by L. Boxus, A. Dodet, A. Gysels and P. Walckiers,
Staff Members of the Analysis Unit,
Catholic University of Louvain

1. The university: a case study

The Catholic University of Louvain (UCL), Belgium, was founded in 1425. Yet this venerable institution was to be rocked by successive upheavals which compelled it, in 1968, to opt for a new system of management.

First, as a result of the growth in student numbers (see Table 1) the academic and departmental authorities very soon found themselves heading a large, highly complex organization.

TABLE 1. Student numbers in the Louvain Universities

	U.C.L. (French-speaking)	K.U.L. (Flemish-speaking)	Total
1958	6 455	6 222	12 677
1970	13 671	14 639	28 310

The administration of staff, buildings, finance, etc., raised serious problems, and at the same time Louvain, which contains about half the total number of Belgian university students, felt the impact of the mounting political tension in the country. Matters came to a head in 1968 when UCL was obliged to move from Louvain within the next ten years. The new site selected was at Ottignies, some thirty kilometres south of Brussels; this became the site of the French-speaking part of the university, while the Flemish-speaking part remained at Louvain. The Faculty of Medicine was to be transplanted at Woluwé-Saint-Lambert in the Brussels area.

The speedy separation of the ancient foundation into two universities, one French-speaking the other Flemish-speaking, was matched by a corresponding division of the central and departmental administrative services. The first step was

to constitute monolingual faculties and appoint Deans and Rectors for the two linguistic segments; the second was to appoint two General Secretaries, one French-speaking and the other Flemish-speaking. These two executives, drawn from the academic world, took on the French or Flemish-speaking staff they needed as occasion arose.

The constitution of a completely new administrative set-up allowed the authorities to appoint staff of university standard to handle the running of the departments, which greatly improved the efficiency of the services concerned, traditionally manned by subordinate staff. In addition, the authorities promoted further training of executive staff by authorizing them to take leave of absence to follow a course of study abroad, or by enabling them to participate in the numerous Belgian or international commissions formed to investigate university matters. This proved extremely productive as a long-term investment.

The division of the universities was completed in July 1970. The 'Université Catholique de Louvain' and the 'Katholieke Universiteit te Leuven' acquired legal status under Belgian law, and were thenceforth independent for both academic and administrative purposes. A third legal entity manages the property which is jointly owned by the two universities and ensured a smooth transition from the previous situation. All matters relating to the university buildings are handled by this third corporate body, which has no competence on the academic side.

This case study undertaken at the request of the International Institute for Educational Planning is restricted to an analysis of the UCL information system. While not wishing to adopt a theoretical approach to the subject, the authors have attempted to give a broad, if still somewhat technical, description of the nature of an information system and a short account of the process of constructing it.

The work undertaken by the UCL Analytical Unit deals only with strictly university administration, and is not therefore concerned with the reorganization of university hospitals and libraries; the former come under the responsibility of the Hospital Programming Board, the latter under that of the Head Librarian at UCL, helped by a team of assistant librarians. Furthermore, the series of studies necessitated by the transfer of UCL to the Ottignies site are being handled by several different departments: Urban Planning and Architecture; Programming; Expansion; Buildings and Technical Studies. The Analytical Unit's task is thus confined to the reorganization of the administrative procedures which are common to all universities. This study is solely concerned with the analysis of administrative reorganization. At the same time, a full description of the metamorphosis undergone by UCL cannot completely ignore the rapid changes in teaching methods, curricula and, especially, the exercise of authority.

2. The higher education system and its relation to the economic and social structure

Belgium does not have an economic and social plan. There is no educational planning at the national level either. There are two ministries for education, a

ministry for scientific policy and a shadow ministry for research support. Each has a policy of its own and an advisory board on which each university is represented. But there are also other ministries involved in one way or another with the universities or some part of them, such as medicine.¹ Such a situation complicates management and especially planning within the universities. However, the principle of the application of uniform and objective norms for the purpose of estimating the needs of all existing and prospective universities has been accepted since 1966. This has called for some planning at the university level.

Belgium with a total population of 9.6 million in 1967 had 53,792 students at the universities in 1966/67, with 13,813 new entrants in that year. Average annual growth rate of enrolment in the universities during the period from 1958/59 to 1966/67 has been 8.4 per cent. Percentage of female students has increased from 18.3 per cent in 1958 to 24.8 per cent in 1966/67. The percentage of public expenditure on all higher education in 1966 was 12.4 per cent. The GNP *per capita* was U.S.\$ 1,918 in the same year.

The Belgian enrolment system

In Belgium, the students select a discipline upon entering the university. In certain cases, the subjects which can be taken during each year of study are prescribed by law. This is so for the fields of law, medicine, pharmacy, applied science, philosophy and letters, and science. For disciplines or special courses not regulated by the state, the university itself determines the subjects in which teaching must be provided. Under this system, the student's choice of courses is very restricted, which justifies the fact that the university allows for enrolment only for each year of study. The student enrolls for optional courses within the faculty or institute.

To obtain a degree, the student has to pass the examinations held at the end of each year in a two or three-year initial qualifying course, followed by two, three or four years in a 'second cycle' course. The first examination sessions are held in June-July each year, with a second session in September for students who failed the first. The student has to pass the examinations held at the end of one year's course before he can enrol for the next, barring a special dispensation.

Admission system

Anybody with a school-leaving certificate is admitted to the university in the Arts Faculties, without further formalities; only the Applied Science Faculty holds an entrance examination for the selection of candidates. A selection procedure is also applied to foreign students.

Furthermore, the student's past performance is not a factor affecting his enrolment chances; he can enter the University on the strength of a diploma awarded by a secondary school. The same applies to admission to the second cycle of studies;

1. A. D. Albright, *University management in Belgium*, Institut Administration—Université Brussels (Mimeo), 1970 (p. 17).

any student holding a first cycle diploma from a Belgian institution is automatically admitted to another institution in the same discipline.

3. The concept of an information system and the UCL information system

An information system may be seen as a balanced structure of individuals, machinery and procedures, designed to produce a flow of relevant data collected both inside and outside the organization concerned. These data constitute the raw material for decisions to be taken at every level of responsibility. The volume of administrative operations carried out in a large institution raises certain problems of organization which are often solved through mechanization. The recording of information on cards, tapes, discs or drums speeds up its processing and links up the various components of the system. This record of information so planned as to facilitate the inter-relations between the various files containing data on activities, as well as on the human, financial and material resources, is called a data bank. This constitutes the first step towards an integrated information system. The information system identifies the relevant information and produces detailed statements which facilitate decision-making, reorganizes the operational services by taking micro-decisions automatically and provides means to assess performance of a system. The data bank consists of data relating to the institution and its environment, and the information system, if it is to be a successful tool for decision-making, should cover the whole structure of the institution to which it relates and should be directed towards specific objectives to be achieved by the institution.

The UCL information system will have five sub-systems, namely:

1. Students; 2. Finance; 3. Buildings and equipment; 4. Personnel; 5. Activities.

The activities sub-system has six components in it:

- (a) teaching; (b) research; (c) social activities; (d) public service; (e) logistics; and (f) administrative activities.

The data to be included in the sub-systems are as follows:

1. Students: (i) selection; (ii) enrolments; (iii) addresses.
2. Finance: (i) accounting and financial data; (ii) fellowships and financial assistance.
3. Buildings and equipment: (i) allocation of lecture rooms; (ii) libraries; (iii) space requirements.
4. Personnel: (i) personnel needs.
5. Activities:
 - (a) *Teaching* (i) enrolment for examinations; (ii) record of courses given; (iii) types of staff involved.
 - (b) *Research* (i) data relating to those taking part in the research activities; (ii) appropriations by types.
 - (c) *Social activities* (i) cultural activities; (ii) medical and mutual insurance service; (iii) employment of students; (iv) psychological consultation; (v) housing.

- (d) *Public service* (i) data received through the association of former students.
- (e) *Logistics* (i) data relating to the library; (ii) service received from computer centre.
- (f) *Administration* (i) allocation of responsibility; (ii) itemized expenditure made by each service.

So far, only those sections dealing with student enrolment and addresses, accounting, financial data, and enrolment for examinations have been put into operation.

The inter-relationship between the sub-systems is established through a 'structure file' which represents the general flow chart of the UCL.

The decision-making process consists of communication of information to the decision-making bodies and transmission of decisions to the various elements of the academic, administrative and social structure following the 'structure file'.

Coding of data

The structure file was coded mnemonically using only letter symbols. An alphabetical code of not more than four letters was chosen. The classification of the units, groups and faculties in the non-alphabetical order of the university structure was obtained by translating the four letters into a six-figure code, two figures identifying the element's position in each of the three tiers of the structure. Intervals of two, five, or ten places allow new units, groups or faculties to be inserted into the flow chart. The file is periodically up-dated to incorporate new decisions by the authorities, as some units are set up, disbanded or transferred from one group or faculty to another every month.

The student sub-system was coded by assigning each student an 'alphanumeric' code. The UCL students are admitted to about 690 different course years, the latter being identified by the 'structure' code with the addition of two digits. The first indicates the study cycle, the second the year in the cycle. One letter may be added to this six-place code to distinguish between the streams or sections of a single course year.

The financial sub-system was coded by assigning each account an identification number of thirty-three positions including reference to all the information needed to process the accounts and to produce information for decision-making and planning. A five-figure account number refers to this identification number and is of current use in the administrative procedures. Several dozens of movements are distinguished and coded to identify movements in accounts.

The building and equipment sub-system has been coded by assigning each building, floor and location a number describing the 'premises' by the site, building and location. It describes purpose, use, gross and net area and capacity.

The personnel sub-system has been coded by assigning each staff member a personal number, his name, name of spouse, date of birth, date of joining the service, place of work, time spent in different works, working hours, civil status,

staff category, grade and scale, his address, pension fund, social security number, family allowances and sources of salary.

The activities sub-system has been coded by taking into consideration the flow-chart of the university. The UCL activities have been grouped into ten classes. Four classes have been assigned to teaching activity, one each to research, public service, social activities, logistics, administration and one class to 'others'. Each class has been further sub-classified according to the specific activity. The thousands of such activities performed by the various components of the university structure are identified by a code indicating the 'producer' unit and the type of the activity. Each activity thus has a coding consisting of the four letters of the 'structure' code and a coding of four figures or letters.

The teaching activities are organized or contributed by a specific faculty or group. They are represented by the symbol of this element of the academic structure, the coding of the appropriate study cycle, and a two-digit number following a numerical sequence.

Some 3,000 courses were taught in the ten faculties and 113 groups in 1968; they were published in the new UCL programme. For each course is shown:

- (a) the coding;
- (b) the established teacher(s), supplementary teacher(s), assistant(s), etc;
- (c) name of the course;
- (d) an abstract of seventy-five words covering the purpose of the course and a summary of the compulsory or optional subjects taught;
- (e) number of hours taken up with theoretical classes, practical classes and seminars, by semester;
- (f) years of study by course.

These various data guide the student's choice of optional courses.

The research activities have been coded to give the information on the name of research activity, its summary, details on participants, and programme for the year.

The activities of the social structure units are assigned a coding which corresponds to the objective in view. The code can be sub-divided into programmes and sub-programmes. There are nine programmes and a total of 56 sub-programmes.

The inventory of administrative activities is established at two levels:

- (a) One file of activities is constituted which indicates the allocation of responsibility—a very limited file made up on the same lines as the file of teaching and research activities, with the sole object of inclusion in the UCL syllabus in order to inform the members of the university about the administration's activities and the responsibilities falling upon each service. In addition, the expenditure incurred by each service is itemized by activities, so that the cost of the latter can be calculated.
- (b) A much more detailed inventory is in course of construction. This serves as the basic file for the application of the Critical Path Method, one variant of which is known as the Programme Evaluation and Review Technique (PERT).

Outputs

The output of the 'structure file' gives the name, code, name of the person in charge and the address of each element in the UCL structure. The file is periodically updated to incorporate new decisions by the authorities as some units are set up, disbanded or reorganized.

The outputs from the student sub-system are a real-time control of student registration; a debit note for the amount of enrolment fees; a certificate of enrolment; the student's card; a national service certificate; payment reminders; student's accounts; list of examination entries and results; alphabetical list and an address list for the faculties; list of alumni with years of study, addresses and examination results for the former school; magnetic tape containing all the information needed to compile national statistics for the university foundation; information dealing with enrolment of students and their examination results for the authorities concerned; and statistics relating to the socio-economic background of the students. The print-out also provides for enrolment forecasts of students by courses computed from a built-in simulation model.

The output from the financial sub-system shows the date and serial number of each financial operation, the code of the structural unit to which an account is assigned, last balance of an account, description of the operation affecting the account, amount of payment in the operation. It also gives:

- (a) A list periodically summarizing the details of the invoices by supplier's number, the amount paid and the outstanding balance;
- (b) A credit office statement describing the state of credits by holder and lists summarizing by faculty the budget control operations;
- (c) Lists showing total operations by nature of expenditure and cost centre;
- (d) Monthly account documents containing information essential to the preparation of progress reports summarizing information both from the accounts department and the budget department.

The output from the building and equipment sub-system gives the statistics related to the amount of space available, net area occupied by each faculty, by building, type of space and type of use.

The output from the personnel sub-system gives the payment order to the bank, summary of taxes and vacation fees, social security contribution, address, breakdown of remuneration by external sources of finance.

The output from the teaching activities file is the following:

- (a) List of teaching activities showing number of hours worked by cycle, group and faculty; by teacher; by teaching method; by discipline, by course year and degree;
- (b) List of appropriations by teaching activity, cycle, group and faculty; by type of expenditure; by discipline;
- (c) Number of teachers taking part per teaching activity.

The output from the research activities file is the following:

- (a) List of research activities by unit, faculty and by type;
- (b) Summary of research activities by academic staff, by unit and discipline;

- (c) List of appropriations by activity, unit, group or faculty, by type of research and type of expenditure.

The output from the social activities file gives information related to the nine programmes and fifty-six sub-programmes.

The output from the administrative activities file gives information related to the activities of the administration, responsibilities for each type of service and the itemized expenditure by each service. It also prints the list of the jobs to be performed by each person, specifying the time required in working days and the operations prior or subsequent to the start or end of each job.

Usefulness of the system and cost of operation

The simple structure of the system makes it possible for the university to co-ordinate the different activities very easily. Establishment of the students' sub-system has increased speed and efficiency of the enrolment procedures. The students do not have to stand in a queue any more to be enrolled. The procedure has reduced the number of staff needed for the work. The analysis of student accounts has also been made much easier. A lot of additional information on each student is now available in a matter of minutes. Establishment of the financial sub-system has increased the reliability and the rapidity of the administrative service, along with reduction in administrative staff. The whole financial system of the university has been reorganized and now much more detailed information is available for financial decision-making. The under-utilization of resources or a deficit can be easily identified and steps can be taken to improve the situation.

The buildings and equipment sub-system is capable of providing a much better inventory of premises, information relating to utilization and need for further expansion. The personnel sub-system has facilitated payments to staff and sources of finance for their payments. Many more details about staff members are now available very quickly.

The teaching activities file provides, in addition to the information listed before, standard costing of each course-hour by discipline and by teaching method.

Performance of research activities can now be easily measured from the information available. Research and teaching activities for each discipline can now be compared.

Better planning and control of administrative activities is now possible.

From the above description, it appears that the introduction of an information system provides speedier information, saving in staff costs and more detailed information about the university's components. The current complexities of university administration often make the use of computers imperative to manage the volume of work in an efficient manner. The university calculated the cost of computerization of the students' sub-system as 380 Belgian francs per year per student, which is covered by the amount each student pays as enrolment fees.¹

1. Exchange rate, July 1972, U.S.\$1 = BF44.00.

4. Scope for further improvement in the information system of UCL

The present weaknesses of the UCL information system can easily be detected. The file of teaching and research activities still needs enriching with more comprehensive data. Student enrolments should take account not only of level of studies but also of the courses followed. The personnel file is very summary and merely meets the operating needs of the departments concerned. It should take account of the breakdown of the time of teachers and researchers among the different activities in which they participate. It should also contain information about the curricula vitae of staff members and provide management information such as rate of turnover, replacement value of teachers and researchers by discipline and seniority, etc. The list of gaps is a long one and proves that the achievement of the first stage of an information system has already been a long job in itself.

Several important fields have not yet been tackled in order to avoid dispersing the efforts of the Analysis Unit. Examples are the distribution of lecture rooms, stock control, checking the regular maintenance of equipment, the automatic printing of certain documents such as course timetables, the communication of decisions in the matter of credits and nominations, treasury administration, the charging of maintenance and repair costs, etc.

Progressively, and according to certain priorities, the corresponding departments will be able to benefit from the data bank and integrate their own data and to apply modern management techniques so as to increase their efficiency.

5. Towards a management information system

It has been stated before that the data bank is the first stage of an information system. The information system, in addition, helps in the identification of relevant information, the reorganization of services (e.g. the automatic ordering of supplies when stocks fall to a certain level) and the supervision of performance to make it useful for decision-making. The information system, when further improved to cater for planning purposes by having built-in mathematical models, becomes a management information system. A management information system would allow for analysis relating to university costs with the use of cost simulation models, optimization of the curricula with the use of a suitably designed objective function and sets of constraints, and formulation of an optimal curriculum budget.

6. Conclusion

The establishment of an information system constitutes a preliminary to the introduction of modern management techniques, and to the rationalization of the decisions taken in the university. It is also an essential condition for the practice

of participation. The latter is, indeed, only conceivable on the basis of a dialogue sustained by a constant flow of information.

UCL has scored some successes, both in overall planning and in working out the student's and financial sub-systems.

Some technical difficulties remain to be solved. University management, indeed, requires an enormous volume of available information. The programmes worked out by the computer constructors do not allow all the files to be easily controlled. In addition, the achievement of such complex administrative applications as accounting and registration demand the collaboration of qualified experts.

The toughest problems arise, however, over the identification of the strategic information to be supplied to the responsible parties. The choices in fact depend on the objectives assigned to the institution as a whole, as well as to its many components. Universities, at present, tend to be distinguished by a manifest lack of policy. Often, they seem incapable of reconsidering the objectives of the past and readjusting the allocation of their resources in the light of new needs.

The acceptance of new procedures also raises some problems. Their adoption should therefore be visualized only after a trial period, during which the old methods remain in use, side by side with the new. The views of the administrative heads should be sought on each occasion; the ideal arrangement is to constitute, as at Louvain, a standing administrative committee to which all new projected reforms are submitted. The acceptance of changes by the teaching staff involves further obstacles, usually due to the inadequate information available to the professors, absorbed as they are by their teaching and research responsibilities. Personal contact cannot be established in every case. Any decision on a proposed reform should, however, take into account the 'orientation' effort which the teachers would have to make, even if the new formula has undeniable advantages over the old one. It is therefore desirable for any administrative procedure implying the participation of teachers and researchers to be fully explained, in the Faculty or University Board, for example.

The biggest psychological obstacle is not, perhaps, to be found among the administrative staff, nor among teachers and researchers. Lack of interest on the part of the authorities will kill initiative more surely than any form of hostility. Efforts to bring in an information system will come to nothing if, on the one hand, the academic authorities do not suggest what information should be produced, and on the other hand, they do not use that information as the basis for their decision-making process.

Apart from these difficulties, the university should ensure stability of the staff in charge of the administrative procedures and the handling of information. It will therefore have to guarantee salary scales and career prospects equivalent to those found in the industries.

The universities will consider the establishment of an information system in the light of the direct advantages it offers in the shape of efficiency of administrative procedures and statistical information. Each achievement is, of course, a special case; the decision to launch the university administration on the track of an information system should therefore be preceded, each time, by a detailed cost-effectiveness

analysis of the project. The results of this analysis will guide the choice of the problems to be allotted priority, as well as the selection of working methods, the corresponding equipment, and the people responsible for implementing the system.

After negotiating the stages of administrative reorganization and the data base, the university will be able to come to the heart of the matter. In doing so, it will arouse the interest of the responsible heads in the management of their faculties and departments. The habit of handling strategic information will make them familiar with the system; they will then expect more of it, and will want to use the available information to enlighten their decisions. At this point, the resources invested in the creation of a system will show their highest return.

B. Systems of indicators and criteria for planning and management at the Western Australian Institute of Technology

by H.W. Peters,¹

*Assistant Director (Administration and Finance),
Western Australian Institute of Technology*

1. The Western Australian Institute of Technology: a case study

The Western Australian Institute of Technology (WAIT) was ten years old in 1972. It was initiated as a part of the Technical Education Division of the Education Department of Western Australia, and in 1963 building began on a site of 240 acres in a suburb of Perth. In 1965 the Commonwealth Government endorsed the concept of the institute and in the following year the State Government passed legislation granting the institute its independence. In 1969 the Institute's full Council was appointed and it was then decided that it should incorporate a number of other colleges of advanced education. And, as a final step in its evolution to academic autonomy, the institute was in 1970 given the formal power to award degrees, and its first degrees were to be conferred in 1973. At much the same time it was decided that university salary scales should apply to the institute.

The functions of the Western Australian Institute of Technology were clearly enunciated in the appropriate Act.¹ Section 7 of the Act in part reads as follows: '...7. The functions of the Institute shall include the following—

- (a) to provide facilities for higher specialized instruction and to advance training in the various branches of technology and science;
- (b) to aid the advancement, development and practical application to industry of science or any techniques;
- (c) to encourage and provide facilities for the development and improvement of tertiary education whether on a full or part-time basis to meet the needs of the community in the State.'

It was explicitly understood that the work of the institute should complement rather than compete with the work of the University of Western Australia.

Thus, in comparison with courses at the university, professional courses at the institute are related to the more immediate and changing needs of the State and Commonwealth commercial and industrial communities, for it was conceived that work at the Institute of Technology should largely be concerned with the teaching and practical application of the knowledge needed for various professional oc-

1. The Western Australian Institute of Technology Act No. 94 of 1966.

cupations and qualifications, whereas work at the university is mainly related to the theoretical development of subject disciplines and professional knowledge and the discovery or extension of knowledge.

The present size of the two institutions is:

University: students 8,690 (3,221 part-time), academic staff 546;

WAIT: students 7,218 (4,341 part-time), academic staff 374.

The reason why the Western Australian Institute of Technology has been made the subject of a case study in the research project on Planning the Development of Universities is not because it is a technological institution, although that undoubtedly gives the study a special interest, but because it has developed an unusually sophisticated system of planning and decision-making. The institute is convinced (though that is not to say that every member of its faculty and staff shares the conviction) that an essential factor in effective decision-making and planning in a higher educational institution is adaptability to change. The Western Australian Institute of Technology system is evolutionary and endeavours to maintain a high degree of flexibility, in order to be able to readily accommodate changing economic and social circumstances.

The institute, indeed, operates in accord with a philosophy that the only constant is change. Thus, it keeps under constant and critical review its organizational structure, decision-making system, planning methodology and detailed educational plans for varying periods of time ahead. Inevitably, there are constraints on the extent of change and the speed with which changes in policy are implemented; such constraints include the physical and financial resources, the need for detailed research and development programmes on current and foreseen problems, and the involvement of its staff, particularly academic, in consideration of contemplated major educational decisions, such as the reorganization of the academic year. In addition to the internal, there are external restraints, such as the attitudes of professional associations and the decisions of such bodies as the Western Australian Tertiary Education Commission and the Australian Commission on Advanced Education.

In particular, the institute's system of indicators and criteria for planning and management has shown a particular strength in its adaptability to change. In the period of just over four years' existence as an autonomous institution it has improved, changed and modified indicators and criteria, organizational structure and communication methods in ready response to changing conditions and circumstances. Some of the changes have resulted from experience gained; others have been direct innovative measures.

There is little doubt that the institute was able to accommodate change because it was a new institution, untrammelled by tradition, and operating in a new and important segment of the system of higher education in Australia. However, many other new institutions have patterned themselves on the old and, accordingly, it needed a conscious decision by the governing council, management and staff of the Western Australian Institute of Technology for the opportunity to be seized.

In retrospect, it would appear that the major strengths of the institute's system, aside from responsiveness to change, have included:

- (a) A firm decision by the council to delegate responsibilities, and thus to concentrate on the broad policy issues, with particular emphasis on the longer-term;
- (b) A relatively sophisticated system of financial management, supported by thorough investigation of the consequences of varying resource allocation decisions;
- (c) The establishment of an Educational Development Unit in 1970, the first of its kind in a college of advanced education in Australia, to provide dissemination of information on new educational developments, advise staff on solving problems in teaching and learning, the evaluation of new educational procedures, staff education programmes and research into current and foreseen educational practices;
- (d) The achievement of a strong research and planning branch to carry out a systematic analysis of current results and to develop a triennium planning system of far greater depth and sophistication than is the Australian norm;
- (e) The making of every endeavour by management to improve the communications system, with particular emphasis on more and more open forums to discuss and recommend on major education and resource decision-making policies;
- (f) The introduction of a highly systemized, yet flexible, policy for the design and construction of buildings, with a strong cost control element; and the development of procedures for educational specifications/architectural briefs which allow for interdisciplinary approaches, allied to the need to rationalize and co-ordinate physical resources;
- (g) The opening-up of channels of communication between the Institute and the community for more effective curricula development in relation to socio-economic needs; and the linking-in of applied research and consulting to the relevance of teaching content and methods;
- (h) Pioneering work in historical cost records and forward simulations of the impact of alternative and varying resource allocation decisions;
- (i) The recent decision to give higher priority to middle- and long-term educational plans;
- (j) Serious endeavours to achieve a reasonable balance between (i) the legitimate right of academics to exercise leadership in the teaching/learning processes, and the rationalization of resources, and (ii) the encouragement to academic divisions and departments to make detailed decisions, through a policy of a substantial degree of decentralized decision-making;
- (k) And finally, such experiments as self-examination of the productivity of the institute, and the conduct of open forum discussions between management and staff.

It is a central theme of the main case study (of which this is a summary) that institutions of higher learning today require a strong central administration and finance division, if they are to handle business matters properly, make effective resource decisions, engage in long-term planning and use such techniques as work study, computer simulations and programmed budgeting to improve their management performance. The case study included a large number of criteria for measur-

ing the effectiveness of planning and management, and the applicability of some of these to other institutions is discussed, and ends with these words:

'The case study has been concerned with an Australian institution. In higher education, however, the greater the degree of dialogue, communication and exchange across national boundaries, the more likely will improvements be achieved. The world is changing and education has not only to adapt to change, but in part to anticipate it. That is the task of today and tomorrow for all those involved in planning and management of higher education.'

2. Higher education in Australia and Western Australia, and its relation to the economic and social structure of the country.

Some facts about Australia

Australia is an island continent of nearly three million square miles in which about 12.8 million people live. About 56 per cent of the population live in the five mainland capital cities; the most recently available figures show that 62 per cent of the people live in cities of 100,000 and over, with a further 7 per cent living in towns of between 50,000 and 100,000; the remaining 31 per cent live in small towns or in rural areas. As far as Western Australia is concerned, out of a population of 1.0 million, 67.7 per cent live in the capital city of Perth.

Australia is still a young country. Nearly half the population (45 per cent) is under 24 years of age, and only 7.7 per cent are over 65.

In 1901, the then British colonies formed a federation of states, becoming the Commonwealth of Australia, as a dominion of the then British Empire. Today, Australia remains part of the British Commonwealth, but has long since achieved full independence. In many matters, the six states are regarded as being sovereign, but since 1942 the power to impose income tax and other major revenue-producing taxes has belonged exclusively to the seat of federal power, i.e. the commonwealth Parliament. Taxation power has inevitably led the commonwealth into assuming more and more responsibility and influence in many key fields, among them education.

Whilst remaining a private enterprise society. Australia has seen in recent years, in common with other capitalist countries, the emergence of government as the major controlling influence in the economy, and the introduction of legislation to control private enterprise in areas in which conflict with public interest was observed or envisaged. Most public utilities and services are owned by the commonwealth or state governments.

Today, 67 per cent of Australian production (net) is in manufacturing, compared with about 27 per cent in primary production and 6 per cent in mining and quarrying.

Trade unions occupy a significant position in Australia, and total union membership appears to be approximately 50 per cent of wage and salary earners. Many industrial awards contain compulsory unionism clauses.

The employers combine in many different types of association, but in general are more fragmented than the unions. Australia's arbitration and conciliation system is well developed and brings employers and employees into a legal structure, which determines salaries, wages and working conditions.

To a large extent, Western Australia is representative of the whole nation. It has a State Parliament comprising an upper and a lower house. Elections for the lower house are held every three years, with universal suffrage for all persons over eighteen years of age.

For 1970 the gross national product (GNP) per head of population was of the order of \$A2,500. This figure indicates a productive society, especially when it is related to the pattern of age distribution which indicates that between 45 per cent and 50 per cent of the population are not in full-time employment.

The system of higher education

It is estimated that about 3-4 per cent of the gross national product is currently spent on education and that educational spending grew between 1965 and 1970 by nearly 70 per cent, compared with a growth of 37 per cent for GNP.

The main streams of higher education are the universities, the colleges of advanced education (to which category the Western Australian Institute of Technology belongs) and the teachers' colleges. All major higher-educational institutions are government-owned, although in the case of all the universities and many of the colleges of advanced education they operate under parliamentary legislation which gives them a large degree of autonomy and designates them as separate corporate and legal entities.

In Western Australia, the institutions of higher education are the University of Western Australia, the Western Australian Institute of Technology and the teachers' colleges. In addition, planning has begun for a second university (Murdoch).

Links between higher education and economic and social planning

At the commonwealth level, the principal bodies responsible for the links between higher education and central economic and social planning in Australia are the Australian Universities Commission and the Australian Commission on Advanced Education, both advisory to the commonwealth government.

The Australian Universities Commission was formed to advise the commonwealth government on financial needs of the universities at three-year intervals (triennia) and to continuously review university development. The Australian Commission on Advanced Education performs an analogous function for the colleges of advanced education.

At the state level, there is the Tertiary Education Commission of Western Australia, a co-ordinating body for all forms of higher education. Its functions include: the promotion, development and coordination of tertiary education; the review of the tertiary-educational institutions, triennial programmes and the levels of

financial support requested; the consideration of proposals for new courses of study, with particular reference to the achievement of rationalization of resources and the avoidance of unnecessary duplication; the co-ordination of criteria for entrants to tertiary-educational institutions; and the promotion and undertaking of research into the needs and problems of tertiary education.

Most higher-educational institutions are autonomous and each embarks upon a programme of courses-development based on its assessment of the needs of the community. The advisory bodies to governments are concerned with such factors as finance, community needs, human resources and design and building capacity, and seek to obtain sufficient data from the institutions covering these aspects before recommendations are made to the government on financial allocations. Their recommendations on new courses are generally based on a subjective judgement that the courses are viable.

While the institutions of higher education have their various links with the agencies of the nation's economy, and while they undertake their forward planning as best they can, they are hampered by an absence of clearly defined national objectives in socio-economic terms; there are no national guidelines as to the proportion of the nation's wealth which is to be used for higher education.

3. The institute's system of planning

The universities and colleges of advanced education are required to make submissions to the federal and state governments, and their advisory bodies, every three years. Each institution has its own planning methods and structures, but the institute has developed a system which is perhaps more managerially sophisticated than most.

The institute's present decision-making structure is shown in Figure 1 overleaf.

Through this decision-making structure, the institute worked out its triennial submission for 1973/75, which runs to over 340 foolscap pages. This submission included: general review and commentary on the 1970-72 Advanced Education Programme; overall pattern of development 1973-81; major objectives for the third triennium, 1973-75; master site-development programmes; capital works programme; staff, student and library projections; present courses and proposed new courses (1973-75); computer development in the institute; recurrent expenditure 1973-75; organizational structure; reviews and forecasts—teaching departments; reviews and forecasts—central service facilities and new developments; basic triennium planning system; supporting schedules Capital Works Programme 1973-75

The triennial submissions emphasize the quantitative approach, in that information on student and staff members, equipment, capital works, library stocks, operating costs, courses and new developments, is given in exhaustive detail. Nevertheless, such institutions as the Western Australian Institute of Technology often take a qualitative approach by defining broad objectives for the years ahead. The following extract from the Western Australian Institute of Technology's submission for 1973/75 is illustrative:

'...To make significant advances in the implementation of certain major educational policies, primarily (a) the clarification of the award structure of the institute with particular reference to the granting of degrees for appropriate courses; (b) liberal education; (c) the extension of interdisciplinary activity and teaching; and (d) staff development.'

Moreover, the institute carries out its own market surveys when considering proposals for new courses. A course proposal is required to include information on such matters as:

- (a) The purpose of the course;
- (b) Evidence of need, including the results of questionnaire surveys, supporting statements from employers or professional bodies;
- (c) Degree of availability of the course in its initial stages;
- (d) Structure of the course;
- (e) An estimate of student numbers for five years ahead as supported by accumulative evidence and argument;
- (f) Estimate of new resources involved, inclusive of staff, equipment, accommodation, consumables and library materials.

At the time of enrolment, academic staff endeavour to counsel students on their choice of disciplines. However, it is becoming increasingly apparent that the procedure needs considerable strengthening, including more vocational guidance in the secondary education system.

The programme as a whole was conducted in accordance with institute policy that estimates were to be based on projected educational and employment demand for courses. No restrictions were to be placed on student intake other than those which may be indicated by employment demand. Preliminary planning indicated that accurate estimates of demand would best be achieved by building up the requirements on the basis of resource demands for individual classes; in order to cope with this on a wide scale, it was necessary to devise a planning system beginning with student projections for the period 1971 through 1976. These projections were converted to subject enrolments and finally to class enrolments. Resulting hours of class contact and distributions of class-size provided the basis for estimation of teaching staff and salaries, classrooms of various types and staff offices.

Techniques were developed which enabled the derivation of a variety of growth indices for student head-counts, student-hours, full-time-equivalent students and class-contact-hours. These were used to project car parking and cafeteria demands, and various budgetary items.

Requirements for other resources such as laboratory equipment, non-teaching space, administrative and wages staff all bore varying relationships to the above parameters. The end result, therefore, was one of strong compatibility between capital and recurrent budgets and student enrolments.

The extraction of 1971 course and subject enrolment projections was a fully computer-assisted operation. The remainder of the programme was carried out manually but with considerable assistance from a desk-type computer. The exercise, although time-consuming, has provided a strong statistical basis for the triennium submission and moreover has enabled the institute to gain a deeper

insight into the problems, limitations and solutions associated with resource planning. This has resulted in the formulation of a comprehensive computerized planning system which, hopefully, will be operative for fourth-triennium planning. In addition to what has been accomplished for the third triennium, the system will take into account average and marginal unit costs per student thus allowing exploration of the financial implications of sets of alternative management policies and assumed or estimated social and industrial demands.

An information base for the programme was established during the years 1968 to 1971 inclusive using three basic data-collection forms: (a) the Statistical Enrolment form; (b) the Student Study Programme; and (c) the Space Planning and Staff Establishment form.

Figure 2 is a flow-diagram indicating the logical sequence of operations composing the research and planning triennium planning programme.

4. Flow of information at the institute

The basis of the institute's information system is the administrative and policy-making structure already described. Theoretically, the system is open in nature, designed to transmit information speedily and effectively, yet with ample feedback channels. Each segment of the institute is in communication with all other relevant segments, while institute-wide matters are extensively debated and recorded, with decisions fed through a whole network of channels. Objections to either policies or projected policies can be raised at virtually any level of the organization and on many occasions senior management has reversed decisions as a result of feedback, uncovering previously unknown factors.

To support its policy-making structure, the institute has several formalized communication systems. A weekly bulletin is issued to all members of staff, giving details of decisions and events, and this is indexed at four-monthly intervals. A guide to procedures is in operation and includes information on organization and general features, academic policies, administrative matters, financial systems, staff policies, student affairs, enrolments and examinations, library procedures, buildings development and maintenance, and general information and emergency services.

The official organ of the institute is the *Gazette*, whose primary concern is external, for it is widely distributed throughout Australia to sister institutions, government departments, industry, commerce and the professions. The Academic Staff Association has introduced recently its own *Staff News*, to act as an open forum for the debate of conflicting ideas. The Student Guild, since its inception, has had its own publication *Aspect* and it is being published fortnightly throughout the academic year.

An Annual report is made to Parliament and is widely distributed. Its contents include an overall report by the Council on the government and progress of the institute, the capital works programme, the auditors' report and financial balance sheets.

Of more importance to the institute itself, as far as the communications system

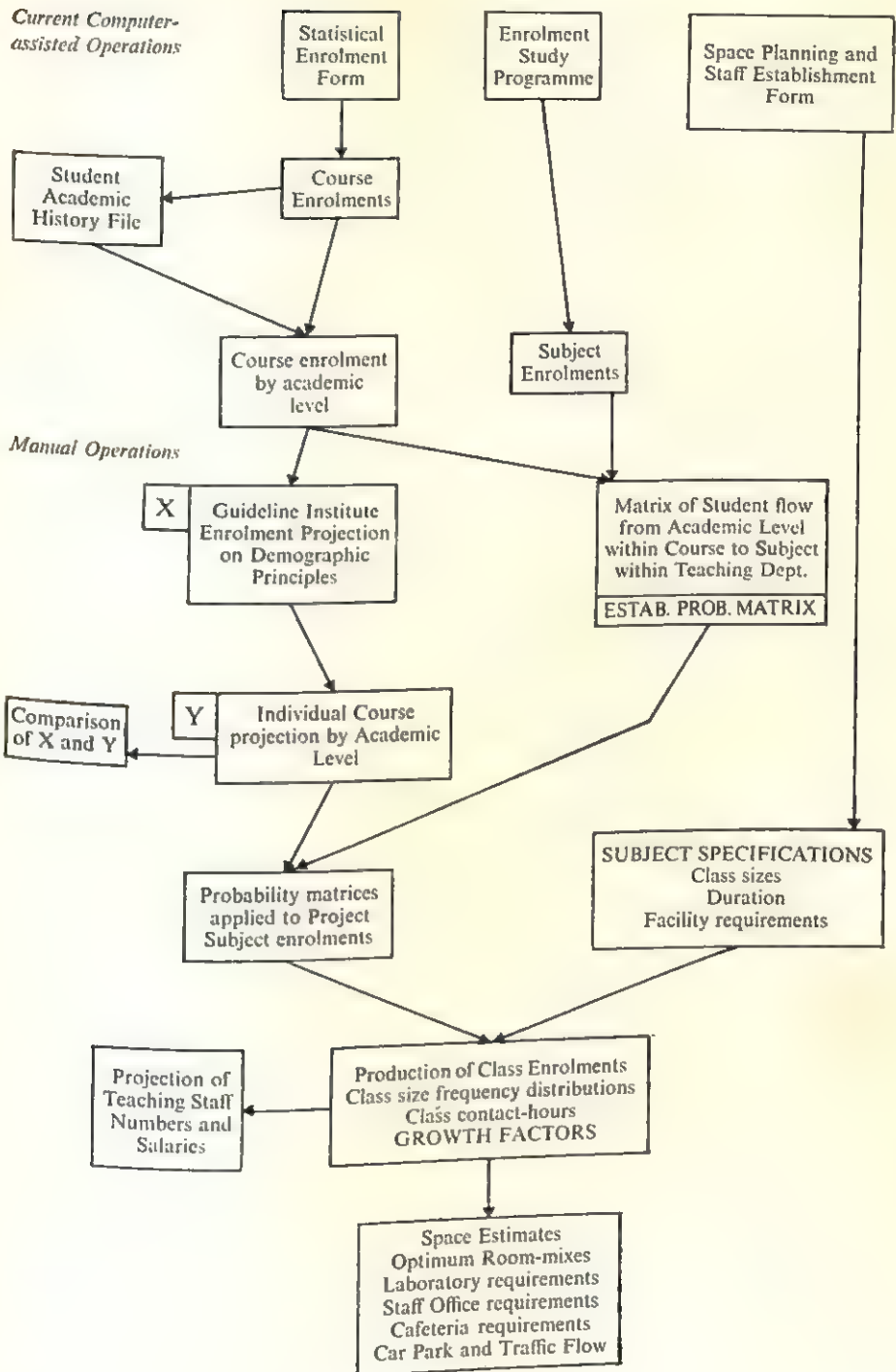


FIGURE 2. Flow diagram of the planning process

is concerned, are the internal annual reports of the teaching departments and other elements of the institute. The teaching departments report on such matters as staff, students, courses, teaching methods and courses, activities of both staff and students, community relationships and liaison with industry and the professions.

The system is inevitably complex, and it has major defects in operation. The causes of the defects include: the dissemination of too much information, resulting in the blocking of the communication channels; failure to keep to terms of reference by some boards and committees; and many staff being so preoccupied with their own field of activity that institute-wide information is disregarded.

The Management Services Branch of the central administration answers literally thousands of questions a year on policy matters, the vast majority of which have been published and are on indexed files in all sub-units of the organization.

It may well be that the institute should devise ways and means of a more selective distribution of material and alongside this, a more positive direction of material to those sub-units to which the information is vital. Another development, and this is planned for 1972, is a more comprehensive central control-board system for deadlines, taking into account the interlocking nature of many decisions.

Finally, the senior management group needs to be strengthened in numbers so that its members may maintain a greater range of informal contacts. Evidence abounds to show that informal communication channels are a necessary adjunct to the best of the formal communication systems.

5. Evaluation of the institute's system and its general relevance

The institute is still a young institution, now being in its fifth year of autonomy. Its decision-making processes have been evolutionary and will continue to change; this has been a deliberate act of policy, reinforced by the rapid growth achieved. Student numbers have been increasing at about an average of 20 per cent per annum.

Certainly, some successes have been achieved and some strengths demonstrated. There has been an acute awareness of the need to respond to change. (In other countries, many new institutions tend to ape the older in the mistaken belief that this would bring status and reputation.)

The Western Australian Institute of Technology has deliberately sought to be different in educational policies and in its management structure. Educationally, it has striven to develop and maintain a high regard for vocational utility of course structure and additionally to be responsive to emergent new fields of social need. The latter has been evident in paramedical studies and computing science. In management, it has tended to be closer to industrial and commercial ideas rather than those of traditional academia.

The latter has been particularly evident in the development of strong sections

dealing with (a) educational research and development and (b) research and planning in quantitative terms. It has been demonstrated in developing useful and relatively sophisticated techniques in cost analysis and basic planning systems. Some of the strengths of the institute's system have been discussed already. On the other hand, there have been significant weaknesses:

- (a) The relative failure of the Academic Board, as the main academic policy-making body, to exercise greater leadership, because of a desire by some senior academics that the Board should not encroach on their vested interest and because of the lack of a specialized secretariat to ensure adequate documentation of major proposals;
- (b) The failure to achieve an effective and representative educational policy authority has led inevitably to either an usurping of power by other organs, or the submergence of a proposal for change in a morass of protracted and acrimonious debate;
- (c) An under-staffing in the senior management structure of the institute;
- (d) A too heavy concentration on quantitative measurement to the partial neglect of qualitative criteria;
- (e) A tendency on occasions to tackle too many significant problems simultaneously, without adequate investigation of priority rankings, resource commitments and the techniques to be used;
- (f) An over-burdening of many academic staff in committee and similar work, to the disadvantage of their self-development and thus limiting their degree of contribution to the longer-term goals of the organization;
- (g) A failure to properly evaluate the communication network, resulting in an over-burdening of the system, and a consequential growing inability to distinguish between the significant and the insignificant.

Systems and indicators developed for a particular institution, operating in a specific socio-economic and political environment, can rarely be transplanted in their entirety, and without modification, to other institutions. Due allowance has to be made for a different locale, differences in history and role, the internal and external societies, and even indeed the personalities which will be concerned.

The problems which are common to many countries and societies include: rapid growth in higher education outpacing available resources, both human and monetary; the need to improve productivity in education without jeopardizing quality; the challenge of continuing or life-long education, in order to cope with new knowledge and the increasing aspirations of adults; experimental work in the learning/teaching process; the relevance of curricula as perceived by students in relation to the realities of life; and the undoubted need to improve methodology and judgement in management and planning.

The Western Australian Institute of Technology system of cost analyses (such as the 'per equivalent graduate' concept) is directly of value to other institutions.

The basic planning system which it has used for triennial student projections, staff numbers, space requirements and the like deserves study by any institution required by governments to submit long-term plans or alternatively interested in so doing for its own benefit. However, in this instance, only the principles of

the system are likely to be applicable, with each institution developing detail appropriate to itself.

The control criteria for management purposes, as used by the institute, are readily adaptable to other institutions. The only pre-requisite is an acute awareness that efficiency and effectiveness of operation is an increasing necessity in higher education. The success or otherwise of introducing such criteria may well depend on (a) the availability within an institution of people with management skills, preferably learnt outside of academia and subsequently modified in the environment of education, and (b) the degree of importance placed on such criteria by governing boards. If the latter are determined to implement public accountability, then such criteria constitute a valuable tool for institutional self-assessment.

In retrospect, it is clear that the criteria came into operation within the Western Australian Institute of Technology because its Administration and Finance Division is resource-conscious. Its staff is drawn from a variety of backgrounds (government, industry, commerce, etc.), with the key ingredient being management knowledge. As has been said, the Division plays a strong role within the organization, and although often criticized, it has been an integrating force, capable of initiative over a whole range of activities.

C. Decision-making and information flow systems in the Middle East Technical University, Ankara, Turkey

by M. Heper,

*Assistant Vice-President, Faculty of Administrative Sciences,
Middle East Technical University*

1. *The Middle East Technical University: the case study*

The Middle East Technical University (METU) in Ankara, Turkey, is a comparatively new foundation. And this fact is evident in its four basic goals, as laid down in the Law of 1959 by which it was finally established: to provide for advanced education in scientific, technical and professional fields, primarily in English, for the qualified Turkish youth; to provide for similar opportunities for youth from other countries; to carry out applied research with special attention to the development of the resources and the solution of the economic problems of Turkey and the Middle East; and to carry out basic research with the purpose of enriching the knowledge of mankind.

In these respects, METU represents a clear break with a tradition where universities have remained scholastic, 'theoretical' and non-research-oriented. In the words of the first Consultant President of METU, each graduate of the university should be inspired 'to want to remain in Turkey and build up its economic strength and independence as his father and grandfather built up its political strength and independence'. And another consultant reported, perhaps over-enthusiastically, that 'METU is unique in Turkey not only because of its youth and growth but also because of its philosophy. It is organized along Western rather than traditional Turkish lines, uses English as the language of instruction, places primary emphasis on practical and technical education in contrast to the more classical universities in Ankara and Istanbul and generally emphasizes a different approach to teaching methods than that of the traditional universities.'

The university was created as the Middle East Institute of High Technology as a result of surveys from 1953 onwards, which found a need for university-trained people in certain technical professions. By 1957, however, the institution had gained formal recognition as a university, and after a two-year planning period, during which it became popularly known as the 'Democrats' University', METU was legally established and was able to build up its full administrative arrangements. In particular, its first Turkish President was appointed.

The early years of METU present a picture of haphazard development, because of either the lack of preplanning or the intolerable misfit between the environment

and the kind of institution that was being adopted. In the Ottoman-Turkish State which came into contact with the West earlier and under different circumstances, there was little else to do but to borrow Western institutions intact. In the case of METU, the model to follow was the American type of university. But gradually indigenous factors played a greater role. During the transition from 'formal organization' to 'institutionalization', Islam Theological-cum-Napoleonic-cum-German traditions influenced and modified the American model.

Despite the fact that METU was conceived as a *technical* university from the very beginning, it seems that the technical aspect of the university always remained ambiguous. After a few years, it was proposed that the first two years of undergraduate education be in basic sciences and the last two years in applied sciences or in 'professions'. And soon humanities and social sciences gained ground not only in servicing technical departments but also in their own right. In fact, it has been predicted that its name may soon be changed to the 'Middle East University'.

The idea behind the adoption of English as the teaching language is that the relations between Turkey and the outer world started two centuries ago and have been increasing since then at an increasingly faster rate, and that Turkey needs a large number of professional men and women who can easily use English in their relations with their counterparts in foreign countries. Besides, there was a lack of high-quality technical literature in Turkish. However, it has been the practice in some departments to see to it that the Turkish students learn Turkish equivalents of the key concepts and expressions, so that once they graduate they can function in a milieu where Turkish is the only medium of communication and transactions.

It is difficult to generalize about METU's performance in terms of research. Given the potential, the research activity has perhaps not been satisfactory, and it seems that research activity in the university has had little to do with developmental problems of Turkey. The departmental system with its haphazard academic leadership and supervision, and the fact that young staff members are involved too early in their career in heavy teaching and sometimes administrative responsibilities, may be responsible for this state of affairs.

Only very recently has there been any move to centralize and institutionalize applied research on a university-wide scale. Work is going on at the moment to organize such research and obtain funds for it.

The university has grown very rapidly. Different targets for the student body were set at different times—6,000, 12,000, 20,000. In the fifteen years between 1956 and 1972, the student enrolment grew from 72 to 6,730. Looking at the distribution of students among different faculties, it is apparent that METU is still basically a *technical* university, though basic sciences have grown in importance. On the other hand, it is on the way to becoming a 'national' rather than an 'international' university; but at present it is still essentially a *Middle East Technical University*.

Almost from the first there was a conviction among those connected with building up METU that it would prove vital to establish the autonomy of the new university and to keep it free from political interference.

Either of two possible developments, however, divert universities from their

manifest function of promoting modernization. First, the university may be little interested in research and teaching directly related to the socio-economic needs of the country. Second, even if that may be the sincere intention, the conflict with the government over the university's autonomy may relegate such efforts to a secondary place.

In METU, one of the organizational innovations was the creation of a Board of Trustees, appointed by the Council of Ministers. Toward the late 1960s, the Board of Trustees became a controversial issue. Certain decisions of the Board on appointments within the university were interpreted as a violation of the university's autonomy and until very recently heated conflicts took place over the issue.

But the question of autonomy at a time of political change and uncertainty is a complex one. The Board actively participated in the development and administration of METU, and enthusiastically co-operated with the President and the Academic Council. But from 1966 on, lines of communication between the Board and the rest of the university were largely disrupted around the issue of autonomy, and the working relations between the university and the Board came to an end, and with them the positive contribution that the Board *could* have made as a link and as a bumper between the government and the university.

Within this milieu, the Office of the President has become significant. The President is appointed by the Board of Trustees and his term of office may be terminated by the Board; the decision of the Board is endorsed by the Minister of Education.

The President in METU is the top executive and is responsible to the Board. He is supposed to govern the university in line with goals, principles and regulations furnished by the Board. He is the chairman of the Academic (now University) Council, and has a right to *directly* supervise the staff members in the university. Thus the President of METU has become very influential, though the role of the President has varied with personalities and the interests of the individual Presidents.

Similar to the President, the Deans and the department chairmen are influential at their own levels. The Deans are nominated by the President and appointed by the Board of Trustees; they are responsible to the President. The department chairmen are nominated by the Deans, suggested to the Board by the President and appointed by the Board of Trustees. They are responsible to their own Deans. At both the faculty and departmental levels, as at the university level, councils work in an advisory capacity only.

It will be evident that there is a strong hierarchical administration in METU. Such a pattern has been established because, as has been said, 'if you want something to be done in Turkey, you must make some person responsible and give him authority'. Within this administrative set-up, those in executive positions are overly influential. The role contents of such positions have not yet been clearly stabilized and each incumbent makes his imprint in his own administrative area. It is a dynamic and flexible system. But the system has its shortcomings. Firstly, the necessary adaptations have not yet been made as the institution has grown

from adolescence to maturity. The early need for a strong executive system may no longer be necessary; it may be dysfunctional since it may hinder creative and innovative administrative patterns. Secondly, information channels seem to be predominantly vertical and often one way—from the top downwards. Thirdly, there needs to be better delineation of rights and responsibilities of the various administrative and/or academic councils. Fourthly, there is a continuing staff-line conflict, as it may be called. The non-academic Presidents aggravate this situation. And fifth, the top echelons sometimes do not operate at their own level and involve themselves in relatively petty matters.

The case study of METU is, in the main, a study of an institution in which planning systems and critical indicators and criteria have not so far been greatly developed or utilized: and in which the relationship between the university's development and the socio-economic needs of the country has been slight. The university's staff have, on the whole, had no urgent conviction that goals should be clearly defined, that there is a need for rational planning, co-ordination, evaluation, review, or for communications. The primary emphasis has been on academic development measured in largely conventional and unsystematic terms.

The study examines the reasons for this state of affairs, and considers what might, theoretically, be established and achieved by way of planning and communications systems.

Thus, the study is primarily valuable as an analysis of planning and communications possibilities in a new university, rather than a description of systems already established and working.

2. The socio-economic characteristics of Turkey, and the educational structure

Some socio-economic facts about Turkey

In terms of all accepted criteria of development, Turkey is an underdeveloped country; the GNP is relatively low. Since Turkey is predominantly an agricultural country, the rate of growth of GNP largely depends on fluctuations in weather conditions. What is more, a significant portion of this low rate of growth in GNP is absorbed by a relatively high rate of population increase, although in 1970 the population per square kilometre was only forty-six.

The rates of economic growth for the 1962-70 planned period usually remained under 7 per cent. In an economic structure where 70 per cent of the population is engaged in agriculture, national income figures inevitably turn out to be low. Moreover, the distribution of income manifests gross inequalities. According to the results of a recent survey on income distribution in Turkey, 10 per cent of the population with the highest incomes have a share of 45 per cent of the total income after taxes. There continues to be a high level of disguised unemployment in Turkey. The capitalist development in agriculture and the rate of urbanization, both gaining momentum particularly since the Second World War, have been influential in the decrease of the proportion of rural population.

There has been a rapid development in manufacturing industry since 1960. The bulk of this development has taken place in the Western regions of the country. This development, however, is still far from a significant qualitative change in the manufacturing industry in general. Quite a high percentage of the manufacturing units are made up of very small-scale establishments. Out of the few large manufacturing establishments, the state enterprises have so far contributed most to the economy and, except for a few large-scale state manufacturing units, there has still not developed a self-supporting manufacturing sector (heavy industry and an industry of intermediate goods) based on modern technology. This situation is one of the most important bottlenecks which render the problems Turkey faces almost insoluble.

Turkey also faces significant manpower problems. The particular configuration of the development process that Turkey finds herself in leads to several kinds of high labour demands. Promoting development by means of central socio-economic planning both increases this demand and unequivocally brings it home.

Education in Turkey

Education has always been in the limelight during the modernization efforts of the last two hundred years in this country. It always had a particular significance for the élites who were bent on modernizing the Ottoman Turkish State. But according to their conception of education, it was conceived to be possible to transform the whole structure of society into that of a Western 'industrialized' social fabric through the leverage of education alone.

In spite of the hopes placed on education, the hard facts are that, in recent years, there was a decrease in the share of state expenditures on education within the total state expenditures and within the GNP; a diversion of expenditures on education toward the areas where it was possible to develop capacity with the least funds rather than to where they are really needed, e.g. a decrease of the share of technical education within the secondary and higher education, and in general, a decrease in costs per student; an abandonment of successful and original experiments in education, and an increase in the number of religious schools and of courses on religion in other schools; and priority was accorded to local influences and political contingencies in making decisions on educational investments.

Despite the fact that during this post-war period several new educational institutions, including three universities, have been established, as a consequence of the unfavourable developments noted, the quality of education has gone down, and the need for technically trained people has continued to increase.

After the 27 May 1960 political takeover and the 1961 Constitution, new possibilities emerged. According to the 1961 Constitution, economic, social and cultural developments were to be centrally planned. The planning was to be indicative for the private sector and imperative for the public sector. A State Planning Organization affiliated to the Prime Minister's Office was established; it was to function in an advisory capacity to the government.

As a result, some improvements have been brought about. The funds allocated

to education have increased, and the fluctuations in educational expenditures and particularly in expenditures related to educational investments have largely been stabilized. The educational investment expenditures have increased in relation to the total educational expenditures from 13.2 per cent (in the 1950-62 period) to 26.7 per cent (in the 1963-67 period). Alongside these developments, some minor achievements have also been made in promoting opportunities for technical education, and in upgrading quality of education in general.

Higher education

At the end of the academic year 1969/70, the Turkish higher educational system comprised eight universities, and about eighty higher schools of education. (Since then, the Bosphorous University has been established.)

According to Article 120 of the Turkish Constitution of 1961, the universities in Turkey 'are only established by the state, by means of an enactment of law' and they 'have public legal personality and autonomy'. With the exception of those universities established by their own private laws (Middle East Technical University, Ataturk University, Hacettepe University, Black Sea Technical University and the Bosphorous University), what are known as the classical or conventional universities in Turkey are 'administered under state supervision' by their own organs elected from among and by their own members.

Duration of education in universities varies between four and seven years.

The main administrative organs of the four conventional universities (Istanbul, Istanbul Technical, Ankara and Aegean Universities) are the Office of President (Rector), the University Executive Council and the University Senate. The University Senate is the decision-making organ in all important matters in the university. The faculty structure of these universities permits the full professors to dominate the faculty decisions.

The other five universities founded by their own private laws have a different administrative set-up. They have variations among themselves, but in general they have a more centralized administrative system than the conventional universities.

In terms of financial administration, the universities can be divided into three groups: (a) Istanbul University, Ankara University, Istanbul Technical University, Aegean University and the Hacettepe University have annexed budgets and have to comply with the general financial provisions in much the same way as the conventional state agencies; (b) Ataturk University and Black Sea Technical University are largely financed by funds from the budget of the Ministry of Education, and are immune from some of the provisions of the general state financial administration; (c) the Middle East Technical University, too, has its own special financial provisions, and does not have to comply with most of the restrictive provisions of the general financial administration.

Except for METU and the Bosphorous University, the university staff members who are entitled to teach consist only of full and associate professors.

The State Planning Organization reviews higher education in four different

fields: science-technology, health, agriculture and general education. Half the students in the university follow a general education, though in 1961/62 the proportion was as high as 61 per cent.

This situation seems to be the consequence of imbalance in allocation of funds in different fields of higher education. This in turn is probably the consequence of costs per student in these different fields of education. Whereas current expenditure per medical student in 1967 was 12,500 liras and for a technical student 7,000 liras, for general students the expenditure was only 1,400 liras, and the corresponding figures for capital expenditure on new capacity per student were 55,000, 40,000 and only 17,500 liras.¹

In the case of the Middle East Technical University, during the past seven years the budget has almost tripled. Funds from the Ministry of Education constitute three-quarters of the budget, but as they are allocated *en bloc*, the university has considerable control over their detailed distribution. The government is in a position only to raise and lower the *total* budget figure. The substantial budget cuts in the current financial year have been interpreted as a consequence of the government's dissatisfaction with leftist movements and disturbances in the university. If there is any validity in this argument, it indicates the indirect and negative control the government has at its disposal over the university.

3. The decision-making process and the flow of information in METU

The study of decision-making processes and of the information-flow at METU was carried out by means of four questionnaires which in effect invited responses to an eclectic model based on the guideline provided by the IIEP and on the experience of the development and characteristics of METU itself.

A theoretical model

The model assumed that, in general, three types of norms should influence decisions at all levels of the university. These sets of norms would have to do first with the socio-economic needs of the country, second with the general academic standards, and lastly with administrative considerations. It was further assumed that in a developing economy, education should be seen as an investment rather than as a consumable commodity. Thus it was taken for granted that the norms relating to the socio-economic needs of the country should loom large in the university decision-making system.

In METU, the Board of Trustees was conceived as the liaison unit through which such norms should flow to the university. And the Board itself should basically draw upon the Ministry of Education (ME) and the State Planning Organization (SPO) for the type of norms in question.

1. Exchange rate, July 1972, U.S.\$1 = 14.00 liras.

Obviously, the norms relating to the socio-economic needs of the country should be considered in conjunction with the norms relating to academic standards and administrative considerations. In the METU system, three sets of councils (Academic Council, now the University Council; Faculty Councils; and the Department Councils) are the proper units to integrate academic and, to a lesser extent, the administrative norms with those of the socio-economic needs, each of course at its own level of generality.

Their deliberations on this matter should be first oriented and then implemented by the executive organs of the university—the President, the deans, and the department chairmen.

In this process, the Office of the President occupies a special position. That Office is the basic point of contact between the university and the Board of Trustees, and through it, the SPO and the ME. It should at least be an office where, with the help of the Academic Council, the flow of norms on socio-economic needs from the Board is integrated with the other types of general guidelines and passed on to each faculty. And in turn that Office is the basic unit where feedback from the university is conveyed to the Board.

For the healthy operation of this flow pattern of norms, and their suitability and their utilization in the actual decision-making process, clear lines of communication, including a dynamic feedback mechanism, are required. Through this mechanism, the norms should flow down to the faculties and the departments, at the same time taking account of new ideas and feedback from below. For an intelligent adoption, implementation and improvement of the formulations so obtained, it is necessary to use some indicators and certain qualitative and particularly quantitative evaluations of the ongoing activities.

It was assumed that, above all, the model delineated should be enthusiastically adopted by the members of the university as a goal to be attained.

Involvement in decision-making

The questionnaires were submitted to all those who had been a member of the Board of Trustees for more than a year, similarly to members of the Academic Council, to the Deans and the Department chairmen, and to a quota sample of the present staff members of the university. The number of returns was extremely low. Only four out of twenty-six responded on the Board of Trustees; twelve out of thirty-three members of the Academic Council; twenty-eight out of seventy-five Deans and the department chairmen; and thirty-two out of sixty-eight staff members.

One may interpret this low return in either of two ways: first, one may argue that for most respondents, the model of the decision-making system and the information flow implicit in the questionnaires were quite alien. If this interpretation is valid, one may expect the deviations from the proposed model to be quite significant, and one may begin to see the reasons behind it. A second interpretation may be that the respondents were reluctant to speak their minds in case what they had to say would be used against them. To the extent that such an

interpretation is valid, one may then expect serious bottlenecks in the free flow of ideas and information in the university decision-making system.

Despite the fact that the numbers of returns were relatively small, the overlaps of the four sets of questionnaires deliberately designed to crosscheck the responses indicated a significant degree of inner consistency between the different sets of responses. Besides, a number of interviews were carried out and, on the whole, they support the data obtained from the analysis of returns and fill in those areas which could not be probed by means of survey methods.

The main findings of this survey can be summarized as follows:

- (a) There appears to be little flow of information to the university about objectives and norms from governmental sources, while the highest decision-making units of the university have been involved in administrative and, to a lesser extent, in purely academic rather than developmental issues. During the relatively early stages of a haphazard university growth, where the Board of Trustees was involved in day-to-day administration of urgent issues and where the Presidents operated either in confusion or crisis situations and involved themselves in physical growth problems, such a preoccupation on the part of the highest decision-making units has perhaps been inevitable. What is more significant is that such a tradition once institutionalized is difficult to change.

In such a state of affairs, even in a relatively hierarchical administrative structure, the *de facto* autonomy of the lower echelons vis-à-vis the decision norms they would have developed could only be expected. In each aspect of academic activities, the faculty and the departmental levels have in fact made the basic decisions, to a large extent independent of orientation from the higher echelons. At these levels of decision-making, the Deans and the Departmental Councils seem to have been suppliers of norms to a greater extent than either the department chairman or the Faculty Councils. It is significant that the Deans appear to have had quite an interest on the recruitment, selection and development of the faculty. As the academic attitudes and orientations of staff members to a large extent determine the academic activities and programmes in their departments, in actual fact the Deans stand out as the most important and critical norm-supplying people in their faculties, and for that matter in the university.

Another interesting observation that may be made here is that the institutions of higher education and research abroad and the technical assistance agencies have been more active than SPO and the ME in trying to orient the decision-making process in the faculty and at the departmental levels. Their interest has particularly been felt in the most critical areas of curriculum development and the recruitment, selection and development of the faculty.

- (b) The State Planning Organization alone stands out as providing socio-economic objectives, but the relative influence of these norms has been negligible. It is clear that the development of the university was a haphazard process with little regard to the socio-economic needs of the country.
- (c) Most of the faculty and departmental decision-making units have felt little need for guidelines from the SPO and the ME.

- (d) As far as the academic activities of individual staff members are concerned, they receive guidance almost exclusively from their departmental decision-units and from fellow staff members.
- (e) The higher decision-making organs of the university, and particularly the Board of Trustees, have been largely cut off (informationwise) from the rest of the university.
- (f) There is also evidence of the isolation of the faculties and departments from the higher echelons of the university and from the relevant outside institutions, and an ambivalence towards information from below.
- (g) The Academic Council constituted the strongest bond in the tenuous relations between the lower academic ranks of the university and the higher decision-making units, though that channel was to a large extent used by the former to assert their political views.
- (h) Asked to describe the desirable qualitative characteristics of the university, the members of the faculty gave very varied replies; an overwhelming proportion of them emphasized the importance of sophisticated empirical research and comparatively few spoke of the need for a socio-economically responsive university. That the goals of the university should be clearly defined, that there is a need for rational planning, co-ordination, evaluation, review and communications, each received only one vote.
- (i) At the faculty and departmental level, there is a great preoccupation with academic matters, but it appears that those qualitative characteristics and developments in the academic area are kept under surveillance without the aid of sophisticated quantitative techniques.
- (j) Finally, if there is a consensus about the lack of orienting principles from the centre, particularly in the academic area, there is a marked difference of opinion whether, in these circumstances, a relatively centralized or decentralized administrative system would be more efficient.

4. Comments and suggestions based on the METU experience, and recent development

Comments on the METU experience

As we have already elaborated upon the preceding conclusions, as well as upon their causes in the earlier parts of this study, we would now like to take up briefly some of the more basic causes of the METU experience.

- (a) Developed in an unplanned economic environment, METU's early experience has greatly influenced its later developments.
- (b) Thus, METU was not consciously developed so as to contribute in a planned fashion to social investment; it developed in a haphazard fashion on the assumption that whatever it contributed would be welcomed;
- (c) Other factors also encouraged normal centrifugal tendencies in a university. The heterogeneous body of early administrators did not help toward the devel-

opment of a centralized administrative system. During the early years, when the nature of the institution and its future development were uncertain, the greater part of the energies of the top administrators were inevitably confined to administrative problems only.

- (d) Thus there followed a shift of responsibility towards lower echelons vis-à-vis the making of strategic decisions about academic programmes, in the absence of orienting norms from above on socio-economic needs. There was a serious problem of communication between these people, which, to a certain extent, still continues.
- (e) A stabilization of programmes and increasing attention to the socio-economic needs of the country was greatly hampered by two additional factors—a high rate of turnover among the faculty, which is still a problem, and political crises from 1966 to 1970 which at the moment seem to have subsided.
- (f) During all this development, there were individual attempts to form a link between the academic programmes and the socio-economic needs of the country, but they remained isolated and largely ineffective.

There are now, however, plans to develop research institutions and graduate programmes responsive to the socio-economic realities in this country, plans which are developing in the milieu of a relatively stable university and a more systematic approach to educational planning at the macro-level in Turkey.

- (g) Over against such promising developments looms large a university tradition indifferent to such matters. Can the dynamism and youthfulness of the university, if harnessed intelligently, overcome that obstacle?

*Some suggestions towards more efficient decision-making
and information flow at METU¹*

- (a) In the METU system the first serious bottleneck is that, in terms of socio-economic norms, the university has been cut off from its environment. In the collection of data the Office of the President should play a key role at least in obtaining information from the ME and the SPO and from other public agencies.
- (b) In order to receive and process data that will arrive in the Office of the President, a standing committee is needed with the relevant Assistant Presidents, Chairmen of the Board of Research, and with representatives from individual research institutions and the faculties as members. This standing committee will have jurisdiction on the overall problem of rendering the university responsive to the socio-economic needs of the country.
- (c) Whereas the Office of the President should be the basic data collection and coordinating agency, responsibility for more substantive and detailed policy-making on these matters should rest with the individual faculties. The committees at the faculty level should harmonize socio-economic, academic and administrative norms which come predominantly from the Office of the President.

1. In this analysis, it is assumed that there is an effective educational planning system in the country.

- dent, but also from the University Council, the University and Faculty Councils, and from the Office of the Deans respectively.
- (d) Another preoccupation of these committees at the faculty levels should be to stimulate and systematize the feedback process and the utilization of quantitative aids, in particular to decision-making.
- (e) The centralization of decision-making (unlike the information flow) is not necessarily appropriate to the academic activities of the university; they require less central direction. It is for this reason that the proposed committee should work *with* the existing councils in the university, and not over them.
- (f) It is important that departments start obtaining data from the proposed central data unit, and that they make use of qualitative as well as quantitative indicators. Qualitative evaluations contained in class advisers' reports, as well as student/teacher ratios, costs per student, etc., should constitute inputs in the final decision-making process. What is absolutely essential is the institutionalization of a systematic mode of thinking. At this stage of the development of METU, it is as important to instil this widened perspective as to introduce and work out a series of indicators.
- (g) The same goes for criteria of evaluation of information in the decision-making process; one should give a balanced weight to qualitative and to quantitative data.
- (h) These suggestions point toward greater coordination within the university. Informal as well as formal means of coordination must be developed. Education is basically an innovative process and it can be carried out only in a predominantly non-bureaucratic organizational setting. Periodic and informal get-togethers of all kinds should be institutionalized.
- (i) As for the flow of norms in the university, the basic remedies would be: (i) a healthy information flow should be established between the university and the SPO; (ii) the socio-economic norms so obtained should be relayed to all levels of the university and each level and individual should be directed towards integrating those norms with the academic and administrative norms; (iii) the previous requirement necessitates a healthy feedback process which is lacking and needs to be improved; (iv) data which may be used as indicators should systematically and periodically be relayed to all levels of the university.

Recent developments in planning of METU

Recently, an effort has been made to collect data on various aspects of the university. Largely as a result of recent policies of the international aid-giving agencies, an effort has been made at METU to make a transition from data collection to the planning of certain institutes and programmes on a university- or faculty-wide basis. Recent efforts toward a conscious planning of the university's contribution to higher education in Turkey are reflected in the justification documents for the current budget and in a working paper on applied research in the university.

Under the subheading 'Targets', the justification document for the current budget contains the following suggestions in this respect: it is expected that the

number of students will be about 12,000 by 1976; parallel to this growth, every effort will be made to develop the necessary staff members and the physical facilities, in particular the library, laboratories, the computer centre and the social facilities; there is also to be an emphasis on applied research, which has so far not been at an appropriate level.

The university hopes that the projected applied research 'will directly contribute to the socio-economic needs of the country; will place the university resources at the disposal of the central development efforts; will provide for an adaptation of the curricula to the needs of the country; be a stimulus to the basic research which in turn will contribute to the development efforts; and finally will render the university an attractive centre for competent scholars.'

The justification document for the current budget projects the establishment of a graduate programme in the Faculty of Administrative Sciences, the only faculty without a graduate programme. It is pointed out that by such a programme, competent administrators and economists will be trained—'an effective contributory factor to the developmental efforts of the country'.

It is also noted that the programmes to be developed in the future will be essentially interdisciplinary. As such, they will raise academic standards in the university as well as contribute to the developmental efforts in the country.

In line with the goals suggested in this document, the Office of the President has established a working committee on the principles and organization of the Institution of Research and Development in the university. The terms of reference of this committee have been to prepare a general regulation to which the more specific regulations of the individual research institutions will conform.

These proposals toward a more centralized system, which at the moment are under consideration, assume a better and more systematic collection and utilization of data. Much centralized data in the university are collected and processed in the recently established Department of the Computer Science. The administrative data in question relate to entrance exams (grading, multiple choice tests), payrolls (salaries, taxes, insurance, etc.) and students (grade-point averages, cumulative grade-point average, etc.).

The department is contemplating collecting various statistical data and utilizing them for administrative purposes, in particular, the correlation between success in entrance examinations and later performance. At the same time work is progressing on facilitating registration procedures and handling space allocations, to avoid conflicts in hours and courses. Another task shortly to be started is to help out the university library in cataloguing periodicals.

The steps represent, it is hoped, a significant first move in establishing a planning system within the university, in making the faculties, departments and staff system-conscious, and in enabling the university to become more responsive to the socio-economic needs of contemporary Turkish society.

Guidelines for the preparation of case studies

Individual guidelines were originally prepared for each of the seven areas of university planning and management on which case studies were desired. Each consisted of five sections: (a) the aims of the research project; (b) an explanatory introduction; (c) a section asking for some basic information on the university and the system of higher education; (d) guidelines for the specific area concerned; and (e) some final comments. Section (a) may be found on page 13 of this volume; in the pages that follow, sections (b) and (c), and section (e), respectively precede and follow the complete set of seven guidelines.

Guidelines for the preparation of case studies

Introduction

The general aim of this problem-oriented case study is to investigate the experience of universities in planning their development in the changing social and economic environment of today, and to study the planning mechanisms used to adapt the university to changing conditions. It is important to point out from the very beginning that we are interested not only in the analysis of the problems of planning in specific fields of university activity for themselves alone, but also in finding out what methods and mechanisms of planning are being used in these fields. The information obtained should provide a kind of illustrative material in our search for the solution to problems arising during university development, and activities in this field should be analysed with regard to their interrelationships with other aspects of university activity. Hence, we are interested in the functioning of the information system and in identifying the critical points which should be taken into account in the different fields when one or more important decisions are to be made. At the same time the system of indices and criteria for the evaluation of the activity and their interrelationship with other indices and criteria should be analysed.

In other words, we are interested in the methodology and mechanisms of planning and management in particular fields as an element to the solution of the whole problem of planning the development of universities. The findings of the research should thus be placed within the context of the planning and management of the whole university.

Some basic information on the university and on the system of higher education within which it functions

In order to be able to analyse in depth the activity of the university in a particular field, it is important to have some basic information on the country: population (including percentage of university age), surface area and that part served by the university; social, economic and administrative structure; the existence of overall

economic and manpower planning; absolute figures for GNP per head of population; percentage of GNP spent on educational development, particularly for higher education; the structure of the higher educational system; role of the central government and Ministry of Education in planning and management of the system of higher education; importance or priority placed on higher education by the government as a tool for the economic, social and cultural development of the country; place and role of your university in the system of higher education of the country or state.

It would also be helpful to have basic information on the university: number of students; number of teachers; annual budget; internal structure and organization, and relationship with central and local government.

I. Methodology of comprehensive planning of the university system

1. Integration of university development planning into the economic and social development plan of the country

In an analysis of the methodology of comprehensive university planning and of the system of indices and criteria for it as well as for measuring the efficiency of planning and management, we are interested not only in the internal processes of the university, but in their links and interrelation with the socio-economic planning of the country. In order to ascertain the closeness of their links, we would like to have information on the following points, supported, if possible, by charts and statistical data:

- (a) Principal links between higher education and central and regional economic and social planning in the country;
- (b) The bodies or mechanisms responsible for these links; their composition and role; the information they transmit and receive (factual or normative);
- (c) System of formulation and evaluation of higher educational objectives; quantitative and qualitative criteria for evaluation;
- (d) Feasibility testing of the higher-educational plan and its consistency with overall planning;
- (e) Links with manpower planning: by what methods are these assured?;
- (f) Links between different manpower sectors and the university;
- (g) Methods for producing the required graduates: distribution of students in different disciplines: system of orientation of students;
- (h) Basing curriculum on socio-economic needs; methods for evaluating programmes;
- (i) Methods for equating demand for places with the needs of the country.

2. Development of comprehensive planning within the university

This should be the central chapter of the report. Here we are interested not only in the history and principles of the development of the planning mechanism within the university, but in an analysis of concrete situations which the university has faced during the process of its development and how problems have been solved. Stress should be placed on any experiences which directly relate to the development of the planning mechanism. Organizational charts, diagrams and detailed analysis of the planning and decision-making processes at different levels would be very helpful.

The following questions, in our opinion, are important in this respect:

- (a) Aims of comprehensive university planning;
- (b) Methods of analysis of university activity in general and of its sub-divisions in particular and of their interrelationships, including descriptions of indices and criteria used for such analysis;
- (c) Development of university information system—basic data used in university management and planning;
- (d) Outline of the development of planning mechanisms and their structure;
- (e) Short-term and long-term planning and their consistency;
- (f) Description of existing planning process and its hierarchical structure:
 - Specification of qualitative and quantitative objectives;
 - Criteria for the choice of priorities, qualitative and quantitative;
 - Flow of resources;
 - Scope of innovation, systems approach to resource allocation, information system, norms, indices, criteria used, if any, interrelationship between different components;
 - Methods of planning different functions of the university and their interrelationships;
 - Role of government and other agencies in the planning mechanism—consideration of social and economic needs of the country or community;
 - Role of the planning unit in the university decision-making process and in the use of managerial techniques;
 - Role of the planning unit in the introduction and use of innovations in teaching and other activities of the university;
 - Feedback mechanism and flexibility of the planning process;
 - Criteria for evaluation of the plan.
- (g) System of indices of the comprehensive university development plan and model of the plan;
- (h) Participation of different social organizations and groups of university staff and students in working out and implementing the comprehensive university plan;
- (i) Difficulties experienced in the development of the planning mechanism and ways and means to solve them.

3. Indices used in university development planning

Here we are interested in a detailed analysis of the indices which are used at the different levels of university administration for decision-making and for planning the development of the university. We would like to point out that we are interested not only in the kinds of data being used but also in the way the data are interpreted. Distinctions should be made between indices used for short-, middle- and long-term planning at the university.

A detailed analysis should be given of such indices as:

- (a) Ratio of acceptances to applications;
 - (b) Number of graduates in relation to demand for them, by field of specialization;
 - (c) Student/teaching staff ratio;
 - (d) Rate of drop-out—student wastage;
 - (e) Proportion of graduate students in student body;
 - (f) Proportion of new courses in the curricula per year;
 - (g) Ratio of available books per student;
 - (h) Availability of teaching and research equipment;
 - (i) Availability of instructional space
 - (j) Unit costs per graduating student;
 - (k) Proportion of research that is of high professional calibre;
 - (l) Number of hours per week instructional space is fully utilized;
 - (m) Distribution of staff time between teaching, research and other activities;
- as well as any others which you use and consider important.

In addition to an analysis of each of these indices, an evaluation of their positive and negative aspects and the limitations of their utilization should be given. We realize that individual indices have a rather limited value in university decision-making and planning and would therefore be interested to know what complexes or systems of indices are used or can be used for a diagnosis of the situation in different fields of university activity and decision-making. We mean particularly such fields as planning of the teaching work, planning of research work, planning of teaching-staff formation, planning of access to the university and employment of graduates, planning of utilization of physical and financial resources. In other words, we wish to have not only evaluations and interpretations of individual indices but of complexes of such indices with information on their interdependences and interrelationships which reflect the interlinking of different functions of the university.

A very important aspect of the analysis of different indices is their quantitative and qualitative interpretation. Qualitative aspects play an extremely important role at universities and especially in planning. Indices which provide information on the quality of teaching and training, level of research, quality of staff and so on, are absolutely necessary for effective university planning and management. Thus we are interested in how you interpret qualitatively those quantitative indices used in planning and management, and also the reverse, how you measure in quantitative terms the qualitative aspects of university activity. From our viewpoint, this should be an important subject for discussion when evaluating indices.

4. Implementation of the plan

Implementation of the plan is of course the most decisive stage in the planning process. It is obvious that not only planning bodies but the whole university and its sub-divisions are involved in it. Here we are interested in the role of the university planning body in implementing the plan, and in its relations with university management at different levels. It would be important to know what were the most important problems the university faced in the process of implementation of plans and how they were solved. In order to answer these questions, we suggest that the following points should be discussed:

- (a) Programme of effective action, schedule of work, checking mechanism, etc.;
- (b) Difficulties experienced: resistance from faculty, administration and students; other unforeseen circumstances;
- (c) Effects on university objectives, choice of programmes, criteria of evaluation, quality of instruction, research and services;
- (d) Alternative solutions.

II. Planning access to the university and employment of graduates

1. Place and importance in the university of planning access and employment of graduates

The case study should cover the following three aspects:

- planning access to the university;
- planning employment of graduates;
- the relationship between planning access and employment of graduates and other fields of university activity.

First of all, an explanation should be given of the place and importance of planning access and employment of graduates in relation to other aspects of university activity.

To this should be added a list of the most acute and urgent problems which the university is facing in this field: lack of information on future manpower requirements of the country/region/different industries, etc.; lack of organizational mechanisms to forecast manpower demand; lack of information on intake of students; and so on. We would like to know how the university overcomes and solves these problems in the process of planning its development and improving its system of management.

We are particularly interested in investigating existing planning and managerial

mechanisms which universities might use for planning access and employment of graduates.

2. Planning access to the university

Planning of access is one of the key points for planning the development of the university. This is why we are interested in obtaining information on this problem—information such as existing criteria for evaluation, and any particular ways and methods that the university has for dealing with this very important aspect of its activity, even though there may be no manpower planning at the national and regional levels. In this regard, we would like to know whether there has been a balanced development of university education in the country with that of primary and secondary education in accordance with a national development plan. If not, how are the imbalances reflected and what information exists on them?

We would like to have a statistical table containing information for the past ten years on the number of students at the university distributed by fields and by year of study in absolute figures and in percentages. This would give the overall picture of distribution of new entrants among different fields of study.

An analysis of this table would reveal the basic tendencies in access to the university, in professional orientation of the students and in orientation of university activities towards the manpower demands of the country.

The analysis can form the basis for discussion of the principles and major tendencies in the development of the policy of access to the university. It would also help to answer the very important question as to what kind of information the university has used as a basis for its decisions on distribution of places among the different fields of studies during the last ten years.

Is there any kind of planning or forecasting of the number of places at the university together with their distribution among the various fields of studies? For this planning, does the university take into account:

- manpower demand for its graduates;
- expected number of applicants for specific fields of study;
- possibility of obtaining additional resources to meet the increasing demand for higher education?

We consider manpower demand to be one of the most important factors in the planning of access and would therefore like to know:

- (a) What is the link between the policy of access to the university and the demand for graduates from it?
- (b) Does the university have information on future demand or current demand for different types of specialists from central economic planning bodies of the country?
- (c) If not, does the university have information on the situation of the labour market? How does it obtain such information? What are the basic indicators and what criteria are used by the university for evaluation of existing information?
- (d) Apart from the above information, what other factors are taken into account when working out the policy of access to the university?

- (e) If information as to future demand for different types of specialists is insufficient, how can the system be improved and developed? What steps are being taken by the university in this matter?

After having analysed the basic principles and factors determining the policy of access to the university, we would be interested to know the technical aspects of admission.

Whatever may be the admissions policy, the universities cannot as a rule accommodate all qualified secondary-school leavers according to their preferences due to limitations of various types of resources. Therefore some type of selection mechanism must be applied. Does the university have an administrative procedure for this selection? How is it organized, what are the procedures and are they the same for all disciplines?

If access to the university is open to all who succeed in the final examination at secondary school:

- (a) How is access to different disciplines controlled?
- (b) Are students asked to leave if they are found to be unsuitable for the course?
- (c) Have facilities expanded to accommodate increased enrolment? If not, which facilities have been the most affected?
- (d) Has the supply of qualified teachers been sufficient to cope with increased enrolment? If not, which disciplines have suffered most?
- (e) What steps are being taken to solve these problems?
- (f) Has there been any need to change methods of instruction?

If access to the university is controlled by a system of selection:

- (a) What are the criteria on which it is based and who works them out?
What are their merits and demerits and can they be improved upon?
 - (b) What are the roles of faculty members, the community and the government in the selection of students?
 - (c) What are the reactions of students towards the university criteria and are their opinions given any consideration?
 - (d) Is there an examination for university entrance? Is it completely controlled by the university? Or is there a central body such as a university examination council composed of people from colleges, high schools, industry and government? What is the opinion of the university on such a body to co-ordinate access to different fields at different universities in order to solve the problem of multiple applications and also to consider employment opportunities in the future?
 - (e) What is the operating cost of the system of selection? Does this have any bearing on the system chosen?
- For both selective and open systems:
- (a) How far ahead is access planned?
 - (b) In the opinion of the university, what should be the formal requirements for entrance to higher education?
 - (c) What additional requirements have to be superimposed on the stated formal requirements to limit enrolment in different disciplines? What factors are taken into account when limiting enrolment to different disciplines?

- (d) Are there any criteria, like ratios of applications to admissions, to establish relative popularity of different fields and correlation with demands for graduates from these fields?
- (e) Has selection of candidates for higher education at secondary schools been considered? If so, have modifications to the existing secondary-school teaching process been necessary?
- (f) How has the admissions system to the secondary-schools influenced the access policy of the university?
- (g) What is the role of the university in secondary-school education?
- (h) Has the secondary-school curriculum been able to keep abreast of current developments to reduce the gap in coverage of subject matter between secondary and higher education? What happens if there is such a gap?
- (i) Is there any system of orientation in the secondary schools towards different fields of studies at the university and towards future manpower demand?
- (j) By what methods has the university met shortages of candidates, if any, for some fields?
- (k) Does the university have any kind of preparatory courses for people who would like to refresh their knowledge in order to meet university entrance requirements?
- (l) Is anything being done to expand educational opportunities for students who applied for higher education but could not be admitted?
- (m) What help is given to underprivileged students to encourage them to pursue higher education?
- (n) How does the university identify and orient students of superior ability?
- (o) Who bears the cost of the admissions process (costs may be defined as examination fees and application fees)?

3. Planning employment of graduates

What kind of information does the university have about employment opportunities for its graduates? Is there any special planning mechanism at the university or on a national level to deal with the problem of employment of graduates? In any investigation of this problem, we are interested in the following aspects:

- (a) *System of professional orientation of the students in the process of their studies*
 - Does such a system exist and on what information and criteria is it based?
 - Does it take into consideration the employment prospects of graduates?
 - How does it exercise an influence on students?
 - Is there an advisory body in the university to deal with professional orientation?
 - Does the university feel that demand for graduates by employers influences access to higher education and orientation even though there may be no planning?
 - Which disciplines are most sensitive to employment opportunities? Have special measures been adopted?

(b) System of information to guide and advise graduates about employment opportunities

- Does the university have any methods or mechanisms for providing employment for its graduates? If so, what form does it take? Are university staff, representatives of industry and government included? If so, what are their roles? Are forecasting techniques used and the admissions office kept informed? What methods and criteria are used?
- If the university does not have any unit for placement of graduates, does it feel such a unit is necessary? If so, how should it be organized to most effectively serve the purposes of this specific university?
- How do graduates find employment at the present time?
- What does the university do if all graduates cannot find employment?
- Is any system of compulsion or persuasion imposed on the graduates to accept certain jobs for a certain period? For example, are incentives offered to graduates at the national or regional level to work in more remote villages or regions? How is concentration of graduates seeking employment in the cities tackled?

(c) System of follow-up of graduates and 'feed-back' mechanism between graduates and university

- Are statistics relating to employment of graduates systematically recorded?
- Has there been any attempt to use these statistics or indicators for planning purposes?
- What influence does information on employment, performances, and unemployment of graduates in different fields have on the policy of access to the university?

(d) System of re-training or improving the qualifications of graduates

- does the university offer any kind of retraining, refresher courses or other types of courses to its former graduates and to people from different branches of the economy or from the region who have university-level education?
- if such courses exist, how are they organized? What kind of links or co-operation exist between the university and those wishing to take the courses?

(e) Participation of different national and local organizations in planning employment of graduates

- what is the role of the Ministry of Higher Education, the state planning committee or manpower committee, if any, in forecasting and planning employment of graduates?
- what roles do regional and local organizations play?

4. The relationship between planning access, employment of graduates and other fields of university activity

Planning access to universities has a decisive influence on the allocation of material and financial resources, on utilization of academic staff, its structure and qualifications, its working load, on the use of teaching facilities, equipment, libraries, the structure of research work, the composition of the student body, unit costs,

and so on. It is, at the same time, very closely linked with the problem of employment of graduates. Hence it is important to work out a set of indices for measuring these relationships. It would be useful if a chart were drawn to show the interdependence of planning access to the university and employment of graduates with the other subsystems of the university. It should show the role played by the other subsystems in these two activities. We would also like to know the role of the administration, professors and students of the university, and of the general public, in formulating the policy of access and of providing graduates with jobs in accordance with their qualifications.

We wish to find out what kind of planning and managerial mechanisms and what kind of planning methodologies are used or can be used to balance such an important input as university students with the university output of graduates, which at the same time eliminates wastage of internal resources and meets national economic and social needs.

This case study will give a picture as to how universities feel demand for graduates influences access to different fields of higher education, how the placement office should be organized, what critical indicators can be used to guide the placement office in finding suitable employment for graduates and also to suggest changes in the attitude of the admissions office in planning access to higher education, and what the universities think should be done at the national and institutional levels to control 'educated unemployment' in some fields and 'educated scarcity' in others.

III. Planning of teaching-staff formation

1. Place and importance of teaching-staff formation in the university

An explanation should be given of the place and importance of teaching-staff formation in relation to other aspects of university activity. To this should be added a list of the most acute and urgent problems which the university is facing in this field—shortages of staff, insufficiently qualified staff, the necessity to improve the quality of teaching, the necessity to employ expatriates and later to replace them with nationals, etc.

2. Organization of the teaching staff, including recruitment policy

The organization of the teaching body varies from university to university and from country to country. In some, the head of a department is the authority in appointing teaching staff of any category to his department; in others, each appointment may need the approval of the government.

The questions to be answered are as follows: How is the structure of teaching activity organized in the university? A description with supporting diagrams showing the hierarchy will be useful.

(a) Categories of teaching staff:

- What are the different categories of teaching staff in the university (e.g. professors, readers, lecturers, etc.)? Please give a description of their functions and responsibilities and their distribution among different disciplines.
- What is the system of academic degrees and academic titles at your university and their role in placing staff in different categories?
 - What is the distribution of full-time and part-time teachers for each discipline? What is the usual work load of part-time teachers?
 - Is there any basis for allocating the work load? What are the advantages and disadvantages of part-time teachers in general and for specific departments? Are there any non-permanent teachers (different from part-time teachers) who are paid on an hourly basis? Some details on them will be useful.

(b) Recruitment policy:

- Is there any committee for selecting the teaching staff? How is it constituted? What is the role of different agencies (e.g. government, industries, community, students and university faculty and administrations) in selecting the staff of different categories? What difficulties are there in the present system of recruitment? Can it be improved? What are the criteria for recruitment of staff of different categories? Are the needs of the country taken into account in choosing the above criteria? Is the policy of recruitment different for different disciplines? Is there a sufficient supply of indigenous teachers of satisfactory quality? If not, are there expatriate teachers? If so, how many and what is the distribution of expatriate teachers in different fields? What steps are being taken to reduce the number of expatriates? What are the most difficult problems which the university has in dealing with expatriate teachers?
- In some countries the salaries of the teaching profession are not attractive and business and industry take away high-quality manpower from the teaching profession. It would be interesting to note and analyse the role of this particular university in making the teaching profession more attractive. A comparative analysis of the salary structure will be useful. An analysis of salaries offered for different categories of the teaching staff of the same discipline and of different disciplines will also help in comparing the interdisciplinary salary structure. Some information on the primary employment of part-time teachers will also help in planning the formation of the teaching staff.

(c) Forecast of requirements:

- Is there long-term planning of the requirement of teaching staff for different faculties, departments or disciplines at the university? If so, what is the period and the method of forecasting?
- It may also be necessary for the university to plan ahead the requirement of staff for the next year. What is the basis of such forecasts? The list of variables and norms, if any, (enrolment, advising of students, supervision of theses, etc.) for such forecasts will be useful. Who are the persons responsible for such

planning at different levels? How are these requirements matched with the limited resources of various types? Who is the final authority in allocating funds? Does the system work satisfactorily? If not, what types of changes are suggested? The case study should highlight any peculiarity of the organization of the teaching staff including the policy of recruitment existing in the university.

3. Planning of the training of young teachers and research workers; and methods of improving the qualifications of the teaching staff

What are the policy and mechanisms for planning and training of young university teachers? What forms and methods of training of future teachers are employed? What criteria does your university apply in selecting candidates for training as future teachers? Who selects them? In which fields do you train the future teachers for your own university? What kind of pedagogical training do future teachers receive during their course of studies? What is the basis for deciding how many young teachers should be trained in the different fields of studies?

Until very recently no attention was paid to the need for improving the qualifications of the teaching staff, but now different forms and methods of training to improve their qualifications are being introduced. It would be interesting to know if the university has an organizational machinery for systematic improvement of the qualifications of the teaching staff. If so, what is the structure of the machinery? Does it take the form of in-service training? Who provides the training? Who receives it? What are the contents of the courses? What are the various techniques of teaching? When are the courses held?

If there is a separate training programme for teachers which entails leave of absence from the university a detailed organizational description will be helpful. Even if there is no organizational machinery for improving the qualifications of the teaching body, universities sometimes adopt on an irregular basis some means to improve the qualifications of the teaching staff, such as sending the teachers to seminars or summer refresher courses, granting some leave of absence to staff members or reducing their work load. A report on such cases will be useful. Universities sometimes encourage research by teachers to bring them up to date with the evolution of knowledge and improve their qualifications. The forms of such encouragement will also give an indication of attempts made by the university in improving the qualifications of the teaching staff.

What is the mechanism for long-term and short-term planning to improve the qualifications of the teaching staff at your university?

4. Distribution of working time between teaching, research and other activities, and indices and criteria for measuring the different types of activities

For better utilization of university teaching resources a rational allocation of the total university teaching-staff hours among the different university activities is

essential. Most university teachers today engage in research activities; they devote a significant part of their time to advising lower-level students and guiding the research work of advanced-level students. They also devote some time to committee and public service activities. Teachers' salaries account for most of the university recurrent budget, so it is wise to see that every man-hour of the teaching staff of different categories is utilized to the maximum possible extent. It would be useful to note if the university has some basis for allocation of working hours between different types of teaching-staff members for various types of work. The following statistics will also be useful:

- (a) Total number of man-hours of different types of teaching staff for different disciplines available to the university;
- (b) Man-hours devoted to lecture, advising, thesis-supervision, committee and public service activities, laboratory work and field work by different types of teachers and for different disciplines;
- (c) Interdisciplinary comparison of different types of work for different categories of staff members;
- (d) Proportions of teaching hours, research hours and hours devoted to all other types of work by different disciplines for different categories of teaching-staff members.

It would also be interesting to know if the university has some idea about the optimum distribution of time between these different activities by different categories of staff members for different disciplines. The emphasis on different categories of staff members is obvious because the effectiveness of these different categories will differ in different types of work.

In addition, it will also be useful to record some information on the preparation of the timetable for different disciplines. Who prepares the timetable? What policy variables are considered, such as allocation of time on teaching, research and other activities for different categories of staff members? Is the computer used for the preparation of a timetable? What criteria for the utilization of facilities are considered in its preparation? Is the receptive capacity of the students considered as a variable in the preparation of the timetable?

A good timetable for the teaching activity will imply a good utilization of scarce resources, student time, teacher time and physical facilities.

5. Methods of evaluation of quantity and quality of work of the teaching staff. Methods of increasing the efficiency of their work

Little importance has been given to the systematic evaluation of teachers' performance in universities so far. However, with the development of modern management techniques, more emphasis is being laid on better utilization of resources. Governments are more concerned with the maximum utilization of the money they are paying for higher education. The students are increasingly concerned with the maximum return from the time they spend on educating themselves. With the enormous expansion of higher education during the last decade, resulting

in increased size of teaching staff, systematic evaluation of the performance of teachers has become necessary.

Even in the absence of a systematic evaluation procedure, universities need to judge performance of teachers for the following purposes:

- (a) Supervisory aid;
- (b) Decisions as to reappointment or termination of teachers' appointments;
- (c) Selection of teachers for promotion;
- (d) Payment of regular increments on the salary schedule, etc.

Various methods have been adopted by universities for taking the above decisions. It would be interesting to know how they are made at your university. Who does the rating? Which of the following criteria are used:

- (a) Professional qualifications;
- (b) Instructional skills;
- (c) Personal characteristics;
- (d) Habits of work;
- (e) Non-instructional service to the university;
- (f) Student results;
- (g) Others.

If a weighting system exists, details would be useful.

It would also be interesting to know what evaluation methods are used, if any. Four general types of such methods can be cited. A particular university may, however, have its own method different from these: or a combination of several methods mentioned below:

- (a) Multiple factor check scales;
- (b) General factor check scales;
- (c) Structured comments;
- (d) Non-structured comments.

Sometimes, the teacher himself may be involved in his evaluation.

What are the quantitative indices and criteria for the evaluation of teachers' performances? What are the indices and criteria for the evaluation of quality of performance? What role do the opinions of colleagues play in evaluating quality?

6. Links between teaching-staff formation and other university activities

The principal activities of a university are: (i) teaching, (ii) research, and (iii) public service, all of which are carried out mainly by members of the teaching staff. They bear the entire burden of the teaching activity, most of the research activity (except for full-time consultants or researchers) and most of the public service activities (except the work done by some purely administrative staff). Therefore, organization of the teaching staff is one of the most important activities of the university. In fact, the quality of a university is maintained by its teaching staff who develop the educational programme, participate in research and innovation and strive to develop professionally.

Any change in the formation of the teaching staff will affect the other components of the university through these links. The student sector of the university is directly linked with the teaching-staff sector quantitatively by the staff/student ratios of different disciplines. The quality of the student outputs is to a great extent dependent upon the quality of the teaching staff.

Bearing the above factors in mind it would be useful if a chart were drawn to show the interdependence of the teaching-staff component of the university system with the other sub-systems.

What is the role of other university sub-systems in planning and managing teaching-staff formation? We are interested, for example, to know the influence of the systems of financing, budgeting, utilization of physical facilities, etc., on teaching-staff formation. We would also like to know the role of the administration, professors and students of the university, and of the general public in formulating the policy of teaching staff formation and its subsequent execution.

IV. Planning of the teaching work

1. Place and importance of planning of the teaching work in the university

It is obvious that the teaching work is not only the most important but also the most complex function of the university. Using systems analysis, we would like all the elements which compose and determine this complex function to be analysed together with their interdependence and interaction with other university activities, in order to define the scope and limitations of planning and managerial mechanisms used by the university in this field.

To this should be added a list of the most acute and urgent problems which the university is facing in this field—shortages of staff, insufficiently qualified staff, the necessity to improve the quality of teaching, to change the curricula in order to adjust it to the social and economic needs of the country and to improve the efficiency of the teaching-learning process, etc. We would like to know how the university overcomes and solves these problems in the process of planning its development and improving its system of management.

2. Planning of the teaching work

In the process of carrying out this case study, the following aspects should be covered:

- (a) The various types of teaching and learning offered by the university;
- (b) Planning of curricula;
- (c) Planning of the work of the teaching staff;
- (d) Planning of the work of the students;
- (e) Planning of utilization of the teaching space and facilities, including teaching aids;
- (f) Planning of the teaching process and methods of working out timetables;
- (g) Methods of evaluation of the teaching work;
- (h) Links between teaching work and other university activities.

(a) The various types of teaching and learning offered by the university

Although full-time day courses form the regular teaching activity of a university, correspondence and evening courses are being introduced in increasing numbers today. It would be useful to know details of the types of teaching activity which are being used to cope with the problem of increasing applications for enrolment. The following questions should be asked:

- (i) How are the full-time day courses organized (detailed structure of colleges, faculties, departments or otherwise)?
- (ii) Does the university have evening and correspondence courses in addition to full-time day courses? If so, please give detailed information on their organization.
- (iii) What are the criteria of enrolment in the different types?
- (iv) What fields of studies and disciplines are offered in each type?
- (v) Do they have the same sort of evaluation as the regular full-time day courses? If not, what are the criteria of evaluation?
- (vi) How are the students evaluated?
- (vii) Is there any follow-up of the graduates?
- (viii) Are there external students in the university (some universities allow students meeting certain study requirements to sit for examinations and award them degrees)? How are they distinguished from students taking correspondence courses? Is there any faculty/student contact for this type of instruction, and if so, how is it organized?
- (ix) Has there been any change or addition in the instructional pattern to meet the increased demand for higher education?
- (x) How are the responsibilities for the organization of the teaching work distributed by the president or head of the university to the individual faculty members?
- (xi) Is there any methodology for measuring and comparing the efficiency of different types of teaching and learning being used at your university for the purposes of planning and decision-making? What are the indices and criteria used?
- (xii) Is there any special emphasis on any particular branch of education: general; technical; specialized training; and inter-disciplinary studies?

A diagram of the different structures for the various types of courses offered will help to locate the key decision-making points.

(b) Planning of curricula

The curriculum is the basis of the teaching work and has the greatest impact on the allocation and utilization of the resources of the university. In turn, various pressures, issues and problems in society and higher education have impact on the curriculum. There is, for example, the pressure of increasing knowledge leading to new specialities, disciplines and courses. Disciplines are being redefined. The concept of learning has also changed and emphasis is being laid on not only what a person learns but how he learns it. There are changes in the students' attitude towards education in preparing themselves for the future.

There are changes in the orientation of the teaching staff, in the character of institutions, their size, number and type, their pattern of governance, finance, facilities and efficiency, their acceptance of new concepts and functions of education and, finally, their increasing involvement in specialization and vocation. All these factors have an impact on the curriculum.

We would like to have answers to the following questions:

- (i) How is the curriculum prepared, updated and modified from year to year?
- (ii) How do you avoid duplication in different courses and achieve proper sequence of the teaching process?
- (iii) It would be interesting also to note the developments and trends of specific fields of studies in the university and also in the country, especially in the development of inter-disciplinary courses and what sort of interdisciplinary courses are being offered. Similarly, if the university has programmes on professional education, it would be interesting to note the developments and trends during the last decade compared to the country as a whole. We should also like to know of any particular aspects of organization of the curriculum for graduate-level education in different disciplines.
- (iv) Is there a curriculum committee? If so, what is its composition (employers, teachers, students, etc.)?
- (v) What is the mechanism of evaluation of the curriculum? If objectives are adequately defined, the effectiveness of alternative curricula can be judged. Is there a procedure or methodology used by the university to judge the effectiveness of a curriculum to attain a specific objective? If so, what are the indices and criteria? Are there any indices and criteria to check the internal consistency of the curriculum with resources available, timetable, etc?
- (vi) Is there any provision in the university to analyse the impact of changes in the curricula on:
 - the distribution of students into courses and groups, the study load, utilization of student time, etc.;
 - the necessity of professors to teach new disciplines, to use new methods of teaching, the teaching load and the qualifications of professors;
 - the participation of professors and students in research;
 - the utilization of teaching space;
 - the unit costs for the addition of a curriculum or changing one.

(c) Planning of the work of the teaching staff

For better utilization of university teaching resources, a rational allocation of the total university teaching-staff hours among the different university activities is essential.

It would be useful to note if the university has some basis for allocation of working hours between different types of teaching-staff members for various types of work. The following information will also be useful:

- (i) Total number of man-hours of different types of teaching staff for different disciplines available to the university;
- (ii) Man-hours devoted to lecture, seminar, advising, thesis supervision, committee and public service activities, laboratory work and field work by different types of teachers and for different disciplines;
- (iii) Interdisciplinary comparison of different types of work for different categories of staff members;
- (iv) Proportions of teaching hours, research hours and hours devoted to all other types of work by different disciplines for different categories of teaching-staff members.

It would also be interesting to know if the university has some idea about the optimum distribution of time between these different activities by different categories of staff members for different disciplines. The emphasis on different categories of staff members is obvious because the effectiveness of these different categories will differ in different types of work.

Who makes the decisions on allocation of teaching staff and amount of time to be devoted to different types of teaching work? What are the norms, if any, and criteria for such allocation?

What are the methods for evaluation of quantity and quality of work of the teaching staff? What indices and criteria are used?

(6) Planning the work of the students

The adequate utilization of students' time and their capacity to learn is a very important factor in the teaching work of the university. To what extent is the students' work organized by the university? Who is involved in this organization—students, teachers (at what level?), administrators? To what extent is this factor taken into account in the planning and management of the teaching process?

What kind of norms (if any), indices and criteria are used for evaluating, planning and managing the students' work?

(e) Planning of utilization of the teaching space and facilities, including teaching aids

Teaching space and facilities are necessary prerequisites for the teaching work. We are interested as to how this factor is taken into account in the process of planning teaching work. What norms, if any, are used? How do you achieve the best utilization of available rooms, facilities and teaching aids? What methods of planning, as well as indices and criteria are used for this?

Which types of teaching and training aids are used by the university? What are

the relative merits and demerits of each of them in the opinion of the university? What is the role of libraries in the teaching programme? Are there attempts to increase effective use of the library? Is there a section dealing with new teaching media?

(f) Planning of the teaching process and methods of working out timetables

By teaching process we mean the dynamic interrelationship of all factors and elements determining this basic function of the university: the teaching activity of the academic staff; the learning activity of the students; and their combination based on curricula and supported by utilization of teaching aids, facilities and space. It is one of the most complex processes in the university because so many variables have to be taken into consideration.

It would be interesting to know in the case of each particular university, the proportion of lectures, seminars, tutorial and laboratory or field work for each field of study and what the criteria are for such division of work. It would also be useful to ask:

- (i) Has there been any attempt to find a satisfactory ratio between lectures, seminars and individual work by students? What criteria were used?
- (ii) Has there been any investigation of methods of lecturing to increase effectiveness?
- (iii) How are tutorials and seminars organized?
- (iv) Is there any basis for assessing alternative teaching methods with respect to cost?
- (v) Has there been any attempt at computing cost per course per student?
- (vi) Is there a minimum obligatory number of periods for students in each field and year of study? What criteria are used to fix such a number?
- (vii) What programmes and methods are adopted to balance campus experience with practical experience which may have vocational significance? What difficulties are encountered in organizing such programmes?
- (viii) What are the difficulties in organizing practical work for students in general?
- (ix) Is the laboratory work of students organized according to prospective job requirements?
- (x) Are students at any stage involved in organized research and problem-solving?
- (xi) Is the university concerned with the professional orientation of the students?
- (xii) Is there any interest in investigating students' motivation in the teaching programme of the university?
- (xiii) What methods are adopted to deal with individual differences in a class?
- (xiv) What methods are used to assure class attendance?
- (xv) What criteria are used in the evaluation and selection of different educational methods?
- (xvi) What criteria are used in the selection of textbooks, reading matter, laboratory activities, classroom activities, methods of presentation, appropriate assignments and tests? Who is responsible for setting these criteria?
- (xvii) How are students' achievements evaluated? What aspects are considered

the most important? How often are such evaluations made? Do you think the system can be improved?

(xviii) How much attention is paid to faculty/student contact in the university and to its effectiveness?

(xix) Are there student advisers in the university and what are their duties?

The answers to such questions as given above will provide the details of the type of teaching process, but if your particular university has any special feature in this respect, it should also be described in detail.

The preparation of timetables is the ultimate stage in the planning of the teaching process. It should ensure:

- (i) Continuity of the teaching process;
- (ii) Proper sequence of courses;
- (iii) Integration of courses;
- (iv) Feasibility and efficiency of utilization of space and staff and student time;
- (v) Due consideration of receptive capacity of students at different hours of the day for different types of instruction;
- (vi) Elimination of conflict with other courses and departments.

It would be interesting to know which of the above, or other, criteria are used, and how. Computers can be a great help in the preparation of timetables—are such facilities used and, if so, how? If not, what are the prospects for utilization of a computer in the future?

What is the organizational structure of planning for the teaching process? What are the rights and responsibilities of university administrators, teaching staff and students in planning the teaching process?

(g) Methods of evaluation of the teaching work

Evaluation of the teaching process involves evaluation of both the teaching staff and student achievement. It would be interesting to know what mechanisms and methods exist in the university to evaluate the overall teaching performance. Who makes and at what level is this evaluation made? What characteristics are considered? What are the variables? If there is any composite index of the measure of performance, details should be given. What sort of mathematical models, if any, are used? Are there any criteria for interdepartmental comparison in respect of teaching performance? How are qualitative aspects incorporated into such criteria?

(h) Links between teaching work and other university activities

Teaching work is one of the principal activities of the university and is very closely linked with other activities such as research, teaching staff formation, utilization of available resources, including finance, etc.

Any change in the teaching work will affect the other components of the university through different links. For example, the student sector of the university is directly linked with the teaching-staff sector quantitatively by the student/staff ratios of different disciplines. The quality of the student outputs is to a great extent dependent upon the quality of the teaching staff.

Bearing the above factors in mind it would be useful if a chart were drawn to show the interdependence of the teaching-work component of the university system with the other sub-systems.

What is the role of other university sub-systems in planning and managing teaching work? We are interested, for example, to know the influence of the systems of financing, budgeting, utilization of physical facilities, etc., on teaching work.

To what extent and at what level of decision-making are such links and interdependencies of different university functions taken into account? Is there any specific organizational mechanism for this?

We would also like to know the role of the administration, professors and students of the university, and of the general public in formulating the teaching-work policy and its subsequent execution.

V. Planning of research work

1. Place and importance of planning of research work in the university

Research is an important activity in the university; its planning, organization and evaluation require close attention in that:

- (a) Active research work produces a creative atmosphere in the university;
- (b) Research is essential for the preparation of qualified specialists to meet the changing demands of the national economy and society, especially for training future research workers;
- (c) Participation in research work by teachers at all levels keeps them informed of the most recent developments in their subjects and ensures continuous improvement of the teaching process;
- (d) Universities where research is carried out attract outstanding personalities from science and industry;
- (e) Research promotes interdisciplinary co-operation and influences the quality of young specialists.

An explanation should be given of the place and importance of research work in relation to other aspects of university activity. In order to ascertain its place and importance in the university, the following questions might be asked:

- (a) What is the place of research in the list of priorities for the university as a whole and for each individual staff member?
- (b) What is the relative importance of basic and applied research?
- (e) What type of research should receive more emphasis within the context of the needs of society? What difficulties are encountered in achieving this?

To this should be added a list of the most acute and urgent problems which the university is facing in this field: for example, shortages of staff; insufficiently qualified staff; the necessity to provide better conditions for research work; to orient it towards the social and economic needs of the country; to improve the balance between basic applied research and development; etc. We would like to know how the university overcomes and solves these problems in the process of planning its development and improving its system of management.

2. Organization and planning of research work in the university

When the place of research in the overall activities of the university has been identified, organization and planning of the research work and steps in the development of effective programmes of research work should be investigated.

The following questions will clarify the existing situation at the university:

- (a) Who chooses the problems for research?
- (b) Who determines the balance between research and teaching, keeping the objectives of the university in view?
- (c) Who determines the balance between basic and applied research and how is this done?
- (d) To what extent does the central governmental control the selection of types of research and their distribution among universities, research institutes and production centres?
- (e) Is there any office which co-ordinates the research work of the whole university? If so, how is it constituted? Are different groups represented in it?
- (f) What is the proportion of organized research to total research in the university?
- (g) Is there any scope for interdepartmental research? How is it organized?
- (h) What types of research proposals are received? Is there a list of criteria or indicators for the evaluation of such proposals?
- (i) Does the university check that research projects are feasible as regards available or expected resources? If so what is the mechanism of such feasibility analysis? What are the variables?
- (j) How is the problem of uncertainty in the availability of research grants tackled?
- (k) What criteria are used in assigning a particular research proposal to a particular college, department or faculty member?
- (l) By what means does the university avoid duplication of research?
- (m) Does the university have separate research centres? If so, how are they organized? What are the factors which lead to their establishment? What are the advantages and disadvantages of having such separate institutes? What is the relationship between such institutes and the faculties and departments? How much independence do they have in respect of finance and choice of projects?
- (n) What is the degree of participation of young staff members and students in research for the university as a whole and for particular fields of study?
- (o) What is the distribution of work load of the staff of different disciplines between teaching and research?

- (p) What administrative mechanisms are used to implement research and what control is exercised by the university?
- (q) What attempts have been made to develop a team concept in research work?
- (r) How is long-term and short-term planning of research work organized at the university? Is there any special planning body responsible for this? What methods are used? What are its relationships with other planning and managerial bodies in the university?
- (s) What factors are taken into account when drawing up long-term plans for research? How much autonomy does the university have in this? What is the role of the government and industry?
- (t) How is doctoral or other thesis work organized by the university?
- (u) How much emphasis is given to developing new instructional methods in the research programme of the university?

3. Flow of information on research work. Indices, criteria and methods of evaluation of quantity and quality of research work and its efficiency

For planning and management of research work, it is necessary to have an adequate information system based on the use of indices and criteria to assess the progress of the work at any particular point and to evaluate the quantity and quality of the work which has been completed. We are therefore interested in the following:

- (a) Indices of labour inputs in research work—teaching staff of all ranks, research workers, graduates and undergraduates—and the criteria for evaluation of their research work;
- (b) Indices of use of research equipment and criteria for evaluation of such use;
- (c) Indices of utilization of research space and criteria for evaluation of efficiency of such utilization;
- (d) Methods of quantitative and qualitative comparisons of the results of research work of different units in the university (faculties, departments) and of individual research workers;
- (e) Indices of influence of research work on the quality of the teaching work and vice versa, and criteria for the evaluation of such interdependence;
- (f) Methods and criteria for the evaluation of the efficiency of research work and utilization of its results in the national economy.

It would be interesting to know to what extent the flows of information on research work fit into the administrative structure of the university. What possible ways are there of improving the flow of such information?

4. Links between research work and other fields of university activity

Research is only one activity of the university and, therefore, an interdependence exists between it and other university activities. Planning of research cannot ignore this interdependence. The object of this problem-oriented case study is also to find the links between research and other activities and to see how decision-making can be improved in an interdependent system. Research activity influences the quality of teaching and training, student intake and performance, the university budget, methods of space utilization, cost per student, etc. From the point of view of ensuring the high quality of university work, the most interesting are the links between research and the teaching process. How are these links taken into consideration in the planning and management of research work? Details on this aspect should be given.

VI. Development of the university information system for planning and management

1. Integration of university development planning into the economic and social development plan of the country

In an analysis of the university information system, we are interested not only in the internal processes of the university, but in their links and interrelation with the socio-economic planning of the country. In order to ascertain the closeness of their links, we would like to have information on the following points, supported, if possible, by charts and statistical data:

- (a) Principal links between higher education and central economic and social planning in the country;
- (b) The bodies or mechanisms responsible for these links; their composition and role; the information they transmit and receive (factual or normative);
- (c) System of formulation and evaluation of higher educational objectives; quantitative and qualitative criteria for evaluation;
- (d) Feasibility testing of the higher-educational plan and its consistency with overall planning;
- (e) Links with manpower planning: by what methods are these assured?
- (f) Links between different manpower sectors and the university;
- (g) Methods for producing the required graduates: distribution of students in different disciplines: system of orientation of students;

- (h) Basing curriculum on socio-economic needs: methods for evaluating programmes;
- (i) Methods for equating demand for places with the needs of the country.

2. The structure and organization of the university information system

Here, the major flows of information from the lowest level of decision-making to the highest and back again should be given—explanations being supported, if possible, by charts and diagrams. We would like to know what kind of information is used at the different levels of decision-making in the university, what kind of generalization of this information takes place, whether there is a feedback mechanism in the decision-making and planning processes and what kind of information is used for this purpose.

In particular, we are interested in the following questions:

- (a) Why is there a need for a university information system?
 - Basic internal and external factors determining the development of the information system;
 - Major tendencies and history of the development of the university information system.
- (b) Major flows of information and the structure of the university information system:
 - Flows of information about the different activities of the university: teaching work, research work, and about different interacting elements, such as staff, students, buildings, finance, etc.;
 - Assembling information on different activities, and methods of analysis and generalization at different levels of decision-making and planning;
 - Fitting the information system into the structure of decision-making and planning at the university;
 - Use of computers and other modern techniques for the processing of information.
- (c) Organizational structure of the university information system and its place and role in the university management system.
- (d) Feed-back mechanisms in the university information system.

3. Indices used in the university decision and planning processes

This should be one of the central chapters of the paper. Here we are interested in a detailed analysis of the indices which are used at the different levels of university administration for decision-making and for planning the development of the university. We would like to point out that we are interested not only in the kinds of data being used but also in the way the data are being interpreted. Distinctions should be made between indices used for short-, middle- and long-term planning at your university.

A detailed analysis should be given of such indices as:

- (a) Ratio of acceptances to applications;
 - (b) Number of graduates in relation to demand for them, by field of specialization;
 - (c) Student/teaching staff ratio;
 - (d) Rate of drop-out—student wastage;
 - (e) Proportion of graduate students in student body;
 - (f) Proportion of new courses in the curricula per year;
 - (g) Ratio of available books per student;
 - (h) Availability of teaching and research equipment;
 - (i) Availability of instructional space;
 - (j) Availability of other space;
 - (k) Unit costs per graduating student;
 - (l) Proportion of research that is of high professional calibre;
 - (m) Number of hours per week instructional space is fully utilized;
 - (n) Distribution of staff time between teaching, research and other activities;
- as well as any others which you use and consider important.

In addition to an analysis of each of these indices an evaluation of their positive and negative aspects and the limitations of their utilization should be given. We realize that individual indices have a rather limited value in university decision-making and planning and would therefore be interested to know what complexes or systems of indices are used or can be used for a diagnosis of the situation in different fields of university activity and decision-making. We mean particularly such fields as planning of the teaching work, planning of research work, planning of teaching-staff formation, planning of access to the university and employment of graduates, planning of utilization of physical and financial resources. In other words, we wish to have not only evaluations and interpretations of individual indices but of complexes of such indices with information on their interdependences and interrelationships which reflect the interdependence of different functions of the university.

A very important aspect of the analysis of different indices is their quantitative and qualitative interpretation. Qualitative aspects play an extremely important role at universities and especially in planning. Indices which provide information on the quality of teaching and training, level of research, quality of staff and so on, are absolutely necessary for effective university planning and management. Thus we are interested in how you interpret qualitatively those quantitative indices used in planning and management, and also the reverse, how you measure in quantitative terms the qualitative aspects of university activity. From our viewpoint, this should be an important subject for discussion when evaluating indices.

4. Criteria used for evaluation of the university's development plan

The major point in this chapter should be a detailed analysis of the criteria which are used or can be used for the evaluation of the university's development plan—in particular, its ability to meet the social and economic needs of the country.

Also, what kind of criteria are used or can be used for the evaluation of the implementation of the plan. Here we are, of course, interested in both qualitative and quantitative aspects of criteria used. It would be useful also to discuss the question as to how the overall productivity of the university can be evaluated and whether one criterion can be applied or a system of criteria.

The analysis of indices and criteria in university planning and management can be supplemented by a description and analysis of the development of the university planning mechanism in recent years. How, due to different situations which the university has faced in recent years, has the system of indicators and criteria changed?

VII. System of indices and criteria for university planning and management

1. Integration of university development planning into the economic and social development plan of the country

See previous Guideline VI for the 'Development of the university information system'

2. Indices used in the university decision and planning processes

See section 3 of previous Guideline VI.

3. Major flows of information at the university and criteria used for evaluation

Here, the major flows of information from the lowest level of decision-making to the highest and back again should be given—explanations being supported, if possible, by charts and diagrams. We would like to know what kind of information is used at the different levels of decision-making in the university, what kind of generalization of this information takes place, whether there is a feedback mechanism in the decision-making and planning processes and what kind of information is used for this purpose. The major point in this chapter should be a detailed analysis of the criteria which are used or can be used for the evaluation of the university's development plan—in particular, its ability to meet the social and economic needs of the country. Also, what kind of criteria are used or can be used for the evaluation of the implementation of the plan? Here we are, of course,

interested in both qualitative and quantitative aspects of criteria used. It would be useful also to discuss the question as to how the overall productivity of the university can be evaluated and whether one criterion can be applied or a system of criteria.

The analysis of indices and criteria in university planning and management can be supplemented by a description and analysis of the development of the university planning mechanism in recent years. How, due to different situations which the university has faced in recent years, has the system of indices and criteria changed?

Final comments

This case study should contain as many factual examples of different aspects of planning as possible.

We would like to point out that we are interested not only in a description or analysis of the existing situation but in an analysis of the dynamics of planning and managerial mechanisms. Thus, we wish not only to know the facts, but to have explanations as to why they happened, why particular decisions were taken and what the foreseeable consequences and future tendencies are—in other words, not just a still photograph of the existing situation but a moving picture of its development.

What do you consider, from the various experiences of planning in your university, would be likely to benefit other universities?

The length of the case study should preferably not exceed 100 typewritten pages.

Documents published by the university which have a bearing on this problem would be welcome, as well as a glossary of terms, if specific regional terms have been used.



The IIEP research project on 'Planning the development of universities'

In recent years the problems of university planning and management have attracted a great deal of attention. The IIEP, in establishing its own research programme, wished to make a contribution to solving some of these problems and in 1969 instituted a project entitled 'Planning the development of universities' whose aims were set out as follows:

1. To analyse the most important and interesting tendencies in the development of universities (past, present and future); to generalize the most valuable experiences in university planning and management, and to identify difficulties and shortcomings.
2. To work out a system of tools and methods for university planning and management, which might be used by the heads of universities to reveal hidden or under-utilized reserves, and generally result in an improved decision-making process which will better adapt the university to the socio-economic needs of the country.
3. To formulate recommendations for the use of modern methods of university planning and management in different situations and circumstances which might be useful to heads of universities in their day-to-day activities.

The book

This volume contains the bulk of the results of the project in the form of the final report, summaries of the case studies carried out in many parts of the world, a report of the discussions at the international seminar which marked the close of the project, and the guidelines prepared by the Institute for use as a basis for the case studies.

The author

Victor G. Onushkin is a Professor of Economics, a senior staff member of the IIEP and Director of the research project on 'Planning the development of universities'. His previous publications include Volumes I and II in the series *Planning the development of universities* and books and articles on the methodology of university planning, economics and the organization of scientific research.